Draft Final Work Plan

Removal of Asbestos Impacted Soils and Vermiculite at the Kootenai Development Company – Kootenai River Properties #1 and #2

Prepared for

W.R. Grace & Co.

19 October 2000

URS

DRAFT FINAL

WORK PLAN
KDC KOOTENAI RIVER PROPERTIES #1 AND #2
LIBBY, MONTANA

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List of Acronyms

AIM	Asbestos impacted materials
AHAs	Activity Hazard Analyses
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Standards
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
CIH	Certified Industrial Hygienist
CQC	Construction Quality Control
EPA	United States Environmental Protection Agency
ft	foot/feet
HEPA	High-efficiency particulate air
HSP	Health and Safety Plan
KDC	Kootenai Development Company
KRPs	Kootenai River Properties
NCP	National Contingency Plan
MDEQ	Montana Department of Environmental Quality
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PCM	Phase contrast microscopy
PjM	Project Manager
PPE	Personal protective equipment
PTO	Power train operation
QA/QC	Quality assurance/quality control
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
SMS	Safety Management Standards
SOW	Scope of Work
SSO	Construction Supervisor/Site Safety Officer
TEM	Transmission Electron Microscopy
TWA	Time-Weighted Average
USACE	United States Army Corps of Engineers
USC	*United States Code*

1.0 Introduction

This Draft Final Work Plan describes activities associated with two removal actions on Kootenai Development Company (KDC) properties adjacent to the Kootenai River in Libby, Montana, and related disposal activities at the former vermiculite mine. Specifically, this Plan describes actions that will be conducted to mitigate asbestos impacted materials (AIM) in soils on KDC properties, one adjacent and south of the Parker property and one across the Kootenai River from the Parker property. The AIM is a result of historical vermiculite storage, and transportation conducted on and around the properties.

The scope of the work is based upon a voluntary action to be undertaken by WR Grace and Company (Grace). The methodologies and activities will follow protocols in place for soil removal at the Export Plant in Libby, MT being performed by Grace.

The primary activities required and incorporated as the Statement of Work (SOW) are:

- Preparation of Site property (e.g., access roads and grubbing);
- Excavation of asbestos impacted soil and vermiculite;
- Transportation and disposal of AIM at the mine; and
- Property restoration at both sites.

Each of these activities will be addressed in Section 2.0 of this Draft Final Work Plan as well as the accompanying appendices.

1.1 Site Location and Description of Properties

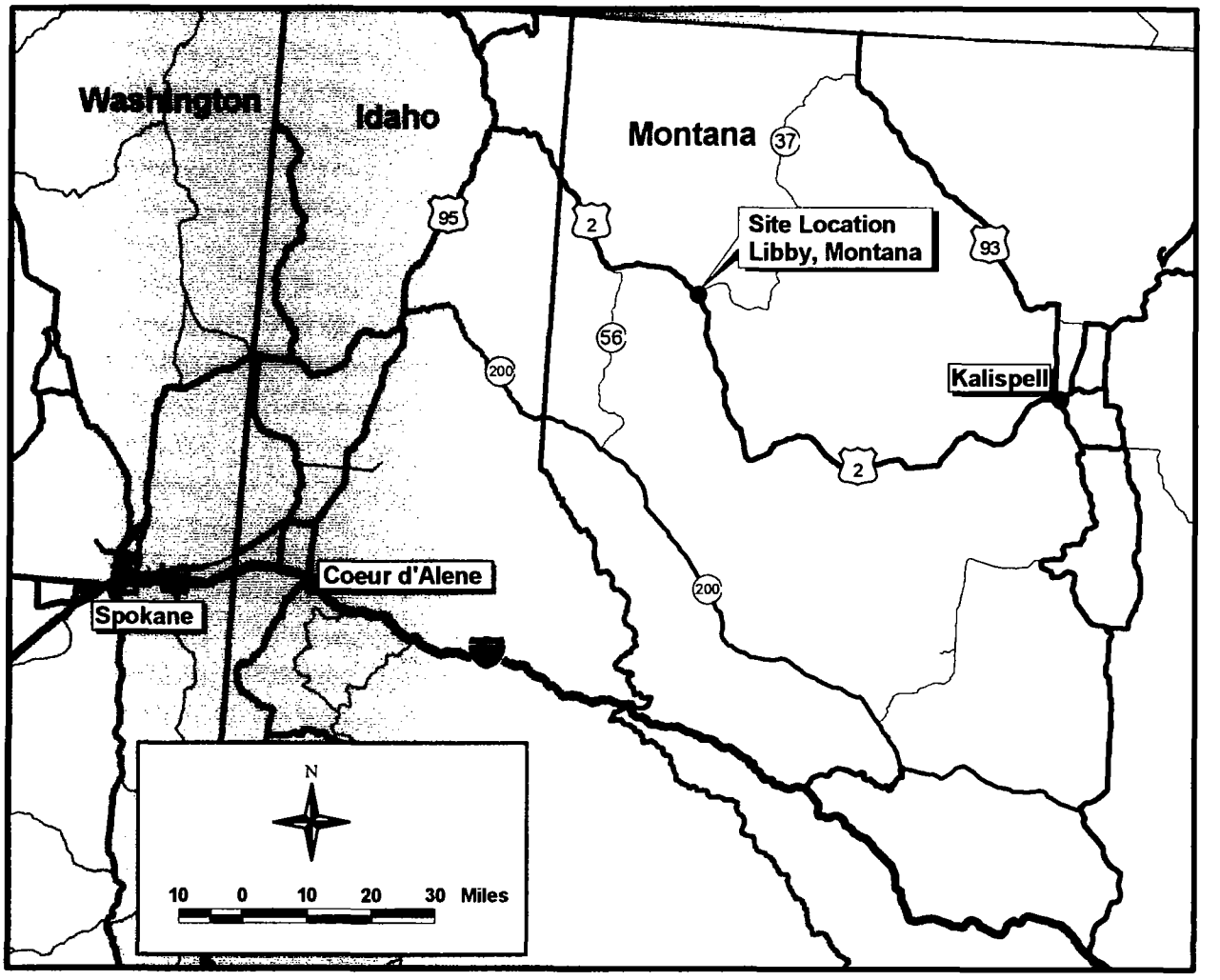
Libby, Montana, is located in the northwestern part of the state approximately 35 miles from the Idaho border to the west and 65 miles from the Canadian border to the north (Figure 1-1). The Properties are located within Section 32, T.31N, R.30W. of the Vermiculite Mountain Quadrangle in Lincoln County. The primary road through Libby is State Highway 2. Libby sits on the Kootenai River and has a population of approximately 2,500 residents. According to the Chamber of Commerce, some 12,000 people live within a 10-mile radius of Libby. The local economy is supported primarily by logging and mining operations in the surrounding area. Libby is also the Lincoln County seat.

The KDC Kootenai River properties (KRPs), are located east of the city of Libby (**Figure 1-2**). The properties have approximately 8.5 acres affected by AIM.

Color Map(s)

The following pages contain color that does not appear in the scanned images.

To view the actual images, please contact the Superfund Records Center at (303) 312-6473.



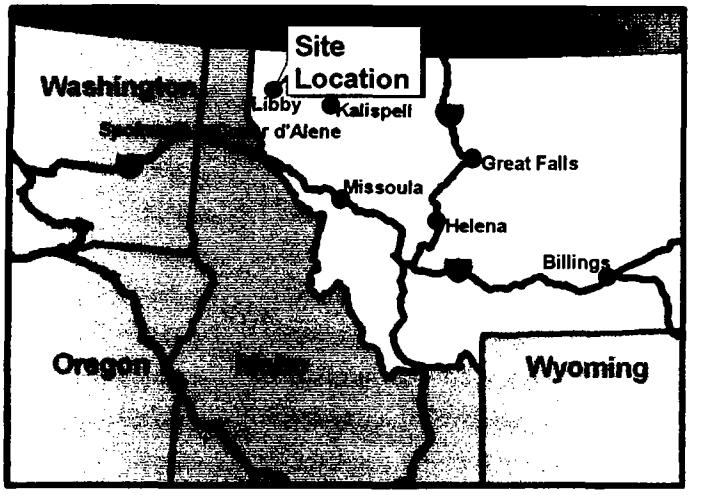
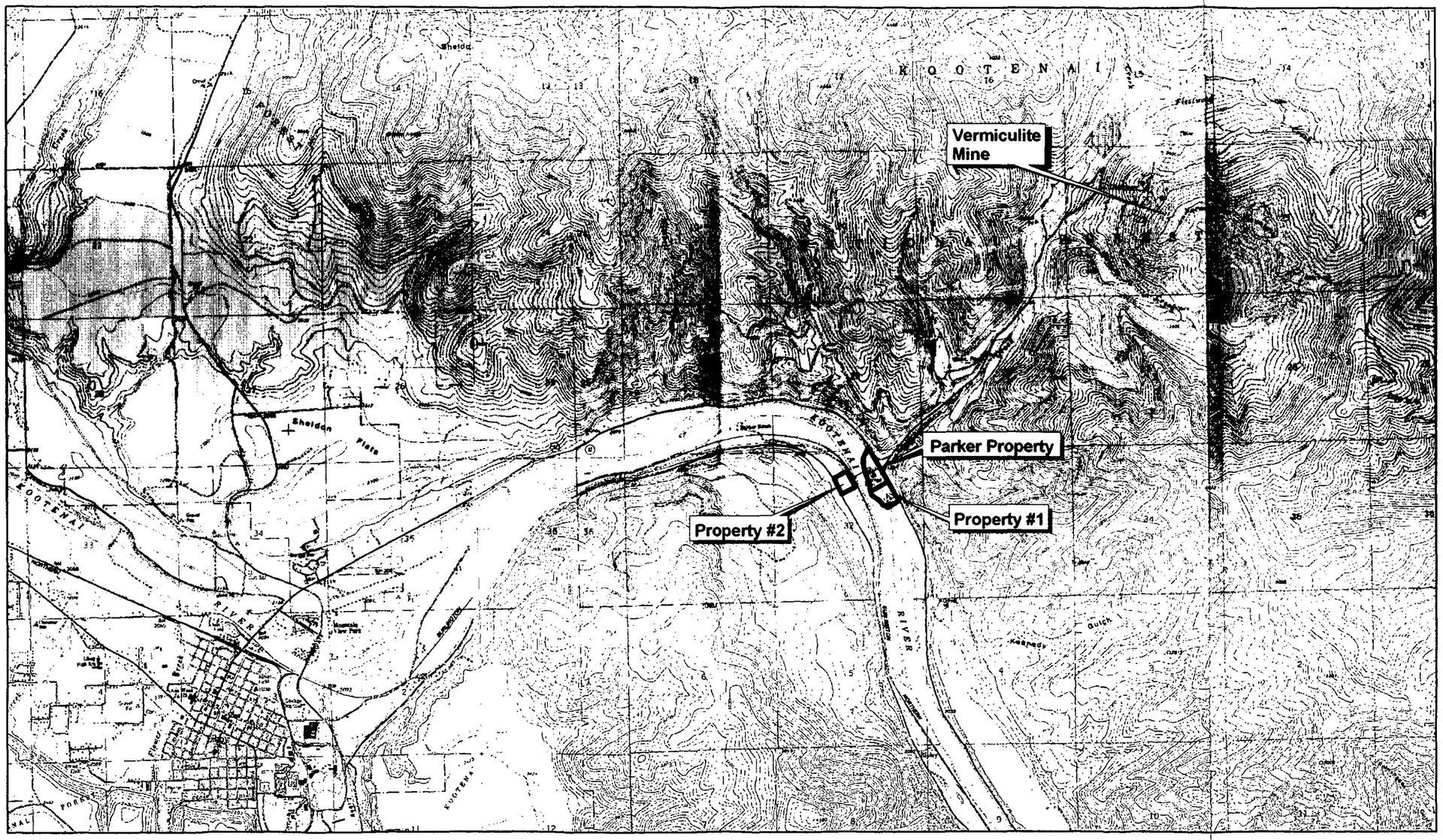


Figure 1-1. Site Map Libby, Montana

KOOTENAI RIVER PROPERTIES
LIBBY, MONTANA

FILE NAME	DATE	DR. BY
libby.apr	27 Sept 2000	JLC



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0.5 0 0.5 1 Miles

Reference: U.S. Geological Survey,
Libby and Vermiculite Mountain Quadrangles, Montana
7.5 Minute Series Topographic Maps

Figure 1-2. Site Locations

KOOTENAI RIVER PROPERTIES
LIBBY, MONTANA

FILE NAME	DATE	DR. BY
libby.apr	18 Sept. 2000	JLC

One property (#1) is on the east side of the Kootenai river, bound by the Parker property to the north, Highway 37 to the east and southeast, and the Kootenai river to the west. The other property (#2) is on the west side of the Kootenai river across from the Parker property and consists of lots 1, 2 and 3 within the KDC development areas. All 12 lots will be visually inspected to confirm exclusions from this work.

The sites are both unoccupied and consist of partial wood acreage. Property #1 had a former pump station on the property. Property #2 was formally used for railroad car loading. No structures exist.

Both properties are accessible by improved roads with final connection to Highway 37. Property #1 has access directly to Highway 37 just southeast of Rainy Creek Road. Property #2 access is via Old Champion Haul Road.

No power is available. Water can be accessed from the Kootenai river.

The former vermiculite mine is located approximately 7 miles northeast of Libby. Access to the mine is via Highway 37 and Rainy Creek Road. This access road is primarily compacted gravel.

1.2 Properties History

Gold prospectors in the Libby, Montana, area in the late 1800s discovered the mineral vermiculite on a mountain which became known as Vermiculite Mountain. The unique characteristics of the mineral, including its expansive properties when heated, flame resistance, and moisture retention capacity, led to commercial mining operations near Libby, which began in 1923 by Mr. Edward Alley. The primary use of the vermiculite was for insulation and soil amendments, and the processed material was known by the name Zonolite.

In 1939 the Universal Zonolite Insulation Company was formed in Libby, and production from the mine approached 100 thousand tons per year. In 1948 Universal Zonolite Insulation Company changed its name to the Zonolite Company. Production by the Zonolite Company reached 150 thousand tons per year in 1950.

The vermiculite was strip mined using conventional equipment and processed in an on-site dry mill to remove waste rock and overburden. The processed ore was trucked down Rainy Creek Road to a screening plant that separated the milled ore into five sizes, depending on its

intended use. The material was then shipped to various cities around the country for direct inclusion into products or for expansion (also known as exfoliation) prior to use in products. The vermiculite ore was found to contain amphibole asbestos fibers of the tremolite-actinolite-richterite-winchite solid solution series (amphibole asbestos).

Grace purchased the Zonolite Company in 1963. In 1974, Grace completed construction and began operations at a new "wet" mill facility in Libby. Operations at the mine and processing facilities ceased in 1990, and reclamation work was initiated. In 1994, the mine site was sold to Kootenai Development Company. The properties were used for staging and shipment. With the shut down, use of the properties ceased and have been left fallow or graded as necessary for land sale in the future.

1.3 Recent Regulatory Developments

In response to local concerns and media reports of asbestos-containing vermiculite, EPA Region 8 sent an Emergency Response Team to Libby in November 1999. In December of 1999, the EPA collected approximately 700 samples from the mine site, processing plants (including the Screening Plant and Export Plant), and residences. Samples included air, soil, dust, and insulation. Additional samples were collected in March and April 2000. Some 2,000 samples have been collected by the EPA to date. Soil sample results released in late March indicated the presence of asbestos within soils where vermiculite is visible. Portions of the two properties have visible vermiculite. Grace proposes to voluntarily clean the two properties of visible vermiculite, grade, and contour to prevent erosion.

1.4 Work Plan Organization

This Work Plan has been prepared by URS Corporation, under the direction of Grace for this voluntary action. Section 2.0 of this Work Plan provides the technical work scope planned for abating AIM at the two properties and disposal of AIM at the former mine. Subsection 2.1 presents the removal action technical specifications, 2.2 describes the Sampling and Analysis Plan, 2.3 presents the Health and Safety Plan, and Section 2.4 contains document control requirements. Sections 3.0 and 4.0 present the project Organization and Schedule, respectively. Appendices have been included with task-specific operating procedures. The Appendices provide detailed Health and Safety procedures and sampling and analytical QA/QC specifications.

Additional Task Plans contained in the appendices are:

- Appendix A—Sampling and Analysis;
- Appendix B—Health and Safety;
- Appendix C—Traffic Control;
- Appendix D—Dust Control;
- Appendix E—Erosion Control;
- Appendix F—Document Control; and
- Appendix G—Restoration.

The draft final Work Plan describes procedures that will be followed for completing all of the soil removal action requirements for AIM removal and verification sampling. The appendices provide even more detail related to sampling/analytical QA/QC, Health and Safety, and specific operations.

2.0 Scope of Work

This Work Plan includes the detailed definition of scope, schedule, deliverables, and organization to implement the removal of asbestos containing soil, vermiculite, and restoration at the two KDC Kootenai river properties (#1 and #2). The Plan also includes transportation activities and placement of removed AIM and soil at the former mine location.

The approach developed by URS utilizes a work breakdown structure (WBS) with ten individual tasks which will be described in Section 2.1. The work will be performed by URS Construction Services Division, West Region, headquartered in Denver, Colorado. Independent air monitoring support will be provided by Koch Environmental Health, Inc. (KEH). Additional subcontractor support has been arranged as follows:

- Survey – JRS Surveying, Inc;
- Analytical laboratory – RJ Lee; and
- Local suppliers of technical expertise will be used whenever feasible.

2.1 Removal Action Technical Approach

This section describes the activities that will be conducted to complete the removal action. The section is divided into ten individual tasks.

2.1.1 Task 1 - Project Planning

Prior to initiation of the removal action, this plan will be finalized and approved by EPA. At its discretion, the EPA may consult with the MDEQ. This plan will then be finalized with EPA comments and then issued as Approved and work will be initiated.

The following sections provide a general description of seven task-specific plans that have been prepared as part of this Work Plan. The plans are presented in Appendices A through G. The plans will be updated and revised throughout the project in response to unforeseen site conditions and/or scope of work modifications. Any proposed modifications to the plans will be discussed and approved by the EPA OSC prior to their implementation.

Sampling and Analysis Plan - Appendix A

The types of samples that will be collected and analyzed to support the removal action include background air samples, daily ambient air samples, health and safety air samples, and soil verification samples. Section 2.2 describes the scope of the planned sampling program. A detailed Sampling and Analysis Plan is attached as Appendix A to this Work Plan.

URS plans to use the services of an independent monitoring firm, KEH, to collect and analyze the background, and daily samples. KEH will collect and analyze samples for health and safety purposes. URS will coordinate with the EPA regarding the collection and analysis of soil verification samples. It is anticipated that URS will collect the soil samples and utilize the services of an outside laboratory such as RJ Lee for soil analysis. The number of soil verification samples collected will be agreed upon during consultation with the EPA OSC.

Health and Safety Plan - Appendix B

The HSP was developed and will be implemented in accordance with the Occupational Safety and Health Administration (OSHA) Standard 29 Code of Federal Regulations (CFR) Part 1910 and Part 1926, and all relevant federal and state OSHA requirements. The HSP was prepared by a URS Certified Industrial Hygienist (CIH). It contains sections on equipment and personnel decontamination for URS operations.

The Health and Safety Plan (HSP) contains specific procedures to be implemented to restrict access to the work areas and to establish work zones during the soil excavation.

Traffic Control Plan - Appendix C

The Traffic Control Plan is written for the mine site disposal of AIM and soils.

Access during soil removal periods will be restricted to personnel associated with the removal action. A designated parking area will be maintained for vehicles at each site. The primary traffic control activities will be associated with the road leading to the mine disposal site. URS will utilize two laborers (flagging) stationed at the egress point for each site to the main highway, Highway 37, and on Rainy Creek Road at the mine entrance gate to control traffic on the mine stretch of roadway.

The flagmen will be utilized to restrict traffic as necessary when trucks are inbound or outbound from the properties. The flagmen will use radios to maintain communications with each other and the trucks.

Additional traffic control procedures are documented in the Traffic Control Plan attached in Appendix C. URS will coordinate with local traffic control officials as appropriate to minimize truck traffic impacts on the local community and to avoid conflicts.

Dust Control Plan - Appendix D

Appendix D describes and presents details of the Dust Control procedures to be used. A water truck will be dedicated to dust control maintenance at each property during removal activities, on Rainy Creek Road and the mine site once disposal activities are initiated. Coordination of the water truck will be the responsibility of the Construction Manager. Current plans involve using water from the Kootenai river at each property.

Air monitoring and visual observations will be conducted on a routine basis to verify that dust control measures are adequate at each property, the mine disposal site, and along the road in between. If air sampling results show an elevated fiber count, additional dust control methods will be taken.

During excavation activities at each property, dust suppression will be accomplished using either a dedicated water truck or, hoses directly supplied with pumped river water. The project team will work with the EPA to establish meteorological parameters (wind speed and direction) during which excavation activities may be performed.

Erosion Control Plan – Appendix E

Erosion control measures will include the use of berms, hay bales, diversion ditches, silt fencing, etc. to minimize both runon and runoff of precipitation during the removal action at each property. Special attention will be paid to ensure that runoff into the Kootenai River is prevented. Any soil that is staged on site during excavation work will be moistened and covered with plastic. Additional specific erosion control procedures and locations of barriers are documented and included in Appendix E to this Plan.

Document Control Plan – Appendix F

URS will implement strict document control procedures for the duration of the work at the properties. Documents will be managed in both hard copy and electronic format. Access to field log books and daily report forms will be restricted to specified URS personnel and regulatory representatives. URS will maintain a Document Control and Quality Assurance Specialist at the site to oversee this task. Appendix F provides details of the procedures to be followed.

Property #1 and #2 Site Restoration – Appendix G

The Restoration Plan consisting of contouring each property in areas disturbed by the removal action will be submitted such that each property may be restored to prevent erosion.

Excavation at each site must be completed before the site specific regrading plan can be completed.

2.1.2 Task 2 - Project Management

The Project Management Team will include an on-site Project Manager that will have primary responsibility for interfacing with Grace, the regulating community, and community interest groups. The project manager will ensure that the work is accomplished safely and in accordance with the requirements of the Work Plan. The project manager will also be responsible for the quality of work, including personnel and environmental health and safety, documenting all activities and, tracking costs and schedule.

The project manager will be supported by home office personnel, a Project Procurement and Control Specialist, an Engineering Coordinator, and a Construction Manager. URS will also maintain an onsite QC/Document Control Specialist. Weekly progress reports will be prepared for submittal to the regulating agencies. All project documentation will be maintained on site with copies sent or faxed to the home office in Denver.

As part of the management task, URS will consult with the EPA regarding the need for any local, state, and/or federal permits that might be applicable to this effort. URS will also review the Applicable Relevant and Appropriate Standards (ARARs) in detail with the regulatory representatives to ensure that the work is accomplished according to current regulatory requirements.

2.1.3 Task 3 - Mobilization

The mobilization task will involve moving excavation equipment from the Export Plant to each property, as well as coordinating the mobilization of the trucking subcontractors. URS will also set up an on-site decon trailer and Connex box at each property during removal activities. Storage of health and safety equipment and other supplies will be provided in the lockable Connex box. The decon trailer will be used at each site for daily worker donning and doffing of clothing and showering. URS will utilize existing office space downtown and at the Export Plant for meetings and centralized management needs. The downtown office will be used by the Document Control Specialist to maintain the project files in a locked secure area.

Portable toilets will be leased through a local supplier. At each property toilets will be set up outside of an exclusion area so that personnel will be required to pass through a

decontamination zone prior to accessing the facilities. The number of toilet seats and urinals will be determined in accordance with 29 CFR 1910.120(n)(3)(1).

2.1.4 Task 4 - Site Preparation

Under this task, URS will establish traffic patterns, parking, and equipment storage areas to optimize safety and efficiency. Exclusion and decontamination zones will be established in accordance with the HSP (Appendix B). Staging areas will be established, fenced or demarked by caution tape, and posted as appropriate. Runon/runoff controls will also be put in place.

At a minimum, the following "areas" will be established during site preparation activities:

- Construction equipment storage area;
- Personnel decontamination trailer for AIM operations. This trailer will include showers, eyewash stations, personal protective equipment (PPE) storage, tables, chairs, and lockers (as needed); and
- Equipment decontamination facilities. One decon pad facility will be constructed at each property. Each pad will be plastic-lined, covered with a minimum of 1 inch of gravel, and drained toward a sump for water collection. Collected water will be filtered before release.

Personnel decontamination facilities for use during removal activities will be provided so that workers can decontaminate themselves before leaving the decontamination reduction zone. The facilities will be located in a mobile decontamination trailer. Water will be provided from a holding tank. A negative air system will prevent asbestos fibers from entering the clean room. Shower water will be filtered to remove asbestos prior to discharge to the environment. Workers will remove their clothing in the dirty room, step into the shower room, and then enter the clean room.

Equipment decontamination facilities will be constructed at each property. Any heavy equipment used will be required to be decontaminated prior to leaving the site. The decon pad will be established with a water collection system. All visible material/soil will be washed off of each vehicle while parked on the pad. Collected water will be filtered before discharge. The pad will also be used for the inspection and decontamination (if necessary) of trucks as they leave the property for the mine site. The location of the pad will be identified by the Construction Manager.

2.1.5 Task 5 - Site Support Services

Site support services include all those activities associated with providing equipment and surveying.

Equipment

Under this task URS will lease necessary equipment and set up services to support the removal action. Leased equipment will include heavy equipment from local vendors as needed and may include an excavator, backhoe, dozer, rubber tire loader, field trucks, and pumps and hoses. Present trained staff will be used for these operations.

Survey

A detailed property line survey and topographic survey has been prepared by JRS Surveying, Inc., a registered surveyor in the state of Montana. Physical features of each property have been located during the survey. The information will be made available in hard copy and AutoCAD. The surveys will be used to establish air monitoring locations, limits of work areas, and to prepare grading and erosion plans for operations and final restoration.

Site Security

Upon mobilization to a property, the property entrance roads will be closed by a swinging gate between two steel posts. Construction access will be through the gates on existing roads with restricted access and egress. Access and egress roads to the each properties will be locked at night.

The mine site access road, at the transition to Rainy Creek Road, will be manned during operating hours and will have the gate locked at the end of daily operations as presently performed. On weekends, Saturday is anticipated to be an operating day and on Sunday one person will make an unscheduled inspection of each property to verify barriers are in place and that the site is secure. The PjM and local police will be notified in the event of any breach of security and appropriate action will be taken. Additional information is provided in **Figure 2-1** and in the Traffic Control Plan (Appendix C).

Figure 2-1. Survey Plot for Site #1 to be inserted here

Figure 2-2. Survey Plot for Site #2 to be inserted here

2.1.6 Task 6 - Surface Excavation

Each property will have areas to be excavated marked by flagging to identify areas of visible vermiculite during a property walk as the first activity. Once areas are marked and available, soil removal will begin. Initially the site will be cleared and grubbed of vegetation using dust control measures. Erosion control measures will be implemented to prevent any runoff to surrounding areas, and dust control equipment will be activated so to prevent migration by wind . All areas of visible vermiculite will be excavated and removed. As a minimum in identified areas, six inches of soil will be removed from the designated affected property (approximately 8.5 acres). Confirmation samples, when vermiculite is no longer visible, will be collected at specified locations according to the Sampling and Analysis Plan and analyzed using polarized light microscopy (PLM). If AIM is found in some areas, an additional 6 inches of soil will be removed up to a maximum excavation depth of 18 inches.

Excavation will be conducted by using an excavator. The excavator will be kept on the unexcavated areas so that cleaned areas are not recontaminated. The material will then be loaded into trucks. The excavation and truck loading operations will be conducted under moist conditions to control dust generation. Water will be applied as necessary. Near trees to remain, an excavator, backhoe, and/or hand digging will be employed to remove soil up to the trunk. No soil staging is anticipated.

2.1.7 Task 7 – Transportation to and Disposal at Mine Site

All AIM soil will be disposed at the abandoned vermiculite mine on Rainy Creek Road. Transportation will be by tarp covered end dump trucks. Truck tailgates will be sealed with a poly sheet to prevent spillage. Truck traffic will be regulated by the flagging personnel per the Traffic Control Plan. A dozer will be operated at the mine site to spread and compact the soil. The material will be graded to a reasonable smooth surface with minimal grade to minimize erosion.

State of Montana Bills of Lading will be prepared by URS for each truckload of soil. Loading of trucks will be done using strict dust control measures. Drivers will be asbestos trained and will wear appropriate PPE specified in the HSP during loading and unloading. All trucks will be thoroughly washed and inspected prior to leaving the property and before leaving the mine disposal site.

2.1.8 Task 8 – Regrading and Seeding

Restoration will consist of grading for contouring across the entire excavated area per final restoration plan. The areas will then be seeded with a locally selected blend to prevent erosion. Excavated areas will not be backfilled to original grades. Grading will be in accordance with a final grading plan for runoff and erosion control.

2.1.9 Task 9 - Demobilization

Before removing all staff, equipment, and materials brought to each property to perform the soil removal action, URS will conduct an exit survey with Grace and the EPA to ensure that all aspects of the specified soil removal has been completed. As a result of this survey, a closeout checklist will be developed for immediate action by URS. Following completion of all of the actions on the checklist, URS will demobilize from the site and remove any temporary barriers or gates.

2.1.10 Task 10 - Final Report

URS will prepare a final report following demobilization from each property. The reporting process will take full advantage of the ongoing documentation, filing, and reporting processes conducted during the implementation of the soil removal action and will include as a basic outline the following:

- A listing of quantities and types of materials removed off site and disposed at the mine;
- A presentation of the analytical results of all sampling and analyses performed; and
- Accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, bills of lading, daily site reports).

The final report will be certified by our URS Project Manager who will supervise and direct the preparation of the report. Following review and comment by Grace and incorporation of their comments by URS, the report will be submitted to EPA and the MDEQ.

2.2 Air Monitoring Requirements

Air monitoring will be conducted to determine airborne asbestos fiber levels during the removal actions. Perimeter air monitoring will be performed by an independent air monitoring firm, KEH. Air monitoring will be performed prior to the initiation of soil removal actions to determine background levels of fibers in the air using Transmission Electron Microscopy (TEM). Air monitoring, using Phase Contrast Microscopy (PCM), will be performed during removal

actions to ensure that fibers are not being released from the work areas during removal actions; to determine the appropriate level of respiratory protection for removal action workers; and to document fiber levels following the removal actions. Appendix A contains details of the planned sampling and analysis program.

2.2.1 Background Air Samples

The air monitoring consulting firm will collect background air samples at four perimeter locations for each property to determine background airborne asbestos fiber levels prior to the start of the removal action. The consulting firm will collect air samples for analysis at identical locations on each property on two different days to determine background airborne asbestos fiber levels. The initial background air samples will be compared to the final clearance samples at the completion of the work. It is expected that the asbestos fiber levels at the completion of the removal action will be lower than the asbestos fiber levels present prior to initiating the removal action. Background sample results will be reported to the EPA during site mobilization.

2.2.2 Ambient Daily Air Monitoring

The air monitoring firm will conduct daily air monitoring during the removal action at each property to ensure that airborne fibers are not being released during the removal action. The air monitoring firm will collect daily air samples along the four perimeter locations for PCM analysis. PCM samples will be collected in the decon trailer clean room. PCM sample results will be reported to the EPA within 24 hours of collection.

The air monitoring firm will place the four battery powered pumps at fixed locations along the perimeter of each property.

2.2.3 Health and Safety Air Samples

During removal activities, the air monitoring firm will collect daily personal air samples off of at least two or ten percent of URS's on-site workers to document compliance with OSHA's Asbestos Standard for the Construction Industry.

The air monitoring firm will collect time-weighted average (TWA) and excursion samples. The TWA samples will be started at the beginning of each work day and will be turned off at the conclusion of each work day. TWAs will be adjusted using the Brief and Scala Method for workdays that last longer than eight hours. Thirty-minute excursion samples will be collected from workers during work activities that are expected to generate the highest fiber levels.

The results of the TWA and excursion samples will be compared to the Asbestos in Construction Standard to determine if the level of respiratory protection worn by removal action workers is adequate.

2.2.4 Ambient Final Clearance Air Samples

At the conclusion of the soil removal action for a property, the air monitoring firm will collect final TEM perimeter clearance samples. The samples will be collected at the same four locations as the background samples collected prior to the initiation of the removal action. Sample results will be reported to the EPA. These sample results will be reviewed by the EPA for final clearance.

2.2.5 Soil Excavation Verification Samples

As described in Appendix A, URS will collect surface soil samples per a grid to be established for each identified excavation area of the property to verify that AIM levels are acceptable prior to final grading. PLM analyses will be conducted on the soil samples. In a meeting on 28 June 2000, Paul Peronard indicated that he would be responsible for reviewing the PLM results for soil and determining acceptable numerical criteria for the soil cleanup.

2.3 Health and Safety Procedures

Appendix B provides a detailed HSP for work at the two KDC Kootenai river properties.

2.3.1 Health and Safety Roles and Responsibilities

Roles and Responsibilities for the URS Project CIH, Project Manager (PjM), Construction Manager/Site Safety Officer (SSO), and site personnel are defined. The Project CIH will be responsible for safety and health oversight and technical support to the project. The Project CIH will prepare or review and approve all work plans and associated health and safety plans. The PjM will oversee project soil removal work. The Construction Manager/ SSO will oversee daily field work and implementation of the HSP.

2.3.2 Training

Site personnel and truck driver(s) will be trained in accordance with 29 CFR 1910.120. Only trained and certified asbestos removal personnel will conduct soil removal work.

2.3.3 Medical Surveillance

Site personnel will receive medical evaluations in accordance with 29 CFR 1910.120 Respirator fit tests will be administered to personnel engaged in removal activities.

2.3.4 Hazard Assessment

Hazard assessment at the properties will consist of the identification and assessment of two basic categories of hazard: chemical and physical, as noted below.

2.3.4.1 Chemical Hazards

Soil samples at sites in Libby have shown up to 10% by weight asbestos. The plan will address site control/containment, personal protective equipment (PPE), air monitoring, decontamination, and emergency response for asbestos removal.

2.3.4.2 Physical Hazards

The HSP contains General Safe Work Practices to address physical hazards. Activity Hazard Analyses (AHAs) have been prepared for each of the anticipated work tasks which describe the task, associated hazards, and controls. The AHA will be supplemented by Task Hazard Analysis Cards for short-term non-routine work. Safety hazards will be addressed by URS standard operating procedures contained in our Safety Management Standards (SMS). Relevant SMSs are expected to include:

- SMS 4 - Accessing Industrial Sites;
- SMS 45 – Back Injury Prevention;
- SMS 14 – Fire Prevention;
- SMS 16 – Hand Tools and Portable Equipment;
- SMS 2 – Hazard Communication;
- SMS 17 – Hazardous Waste Operations;
- SMS 19 – Heavy Equipment Operation;
- SMS 21 – Housekeeping;
- SMS 26 – Noise and Hearing Conservation;
- SMS 30 – Sanitation;
- SMS 34 – Utility Clearance and Isolation; and
- SMS 32 – Work Zone Traffic Control.

2.3.5 Personal Protective Equipment

PPE for soil removal is addressed in the HSP. All personnel involved in intrusive activities of soil excavation will be required to work in Level C PPE at a minimum. PPE programmatic requirements are addressed in SMS 29 on Personal Protective Equipment.

2.3.6 Air Monitoring

The HSP contains an Air Monitoring Plan which will address asbestos sampling requirements during removal actions. Air monitoring will be conducted per SMS 43. Asbestos air monitoring during removal actions will be conducted in accordance with ARM 17.74. Air monitoring will include background air sampling prior to the start of work, personal breathing zone air samples, area monitoring during removal activities, and final clearance sampling following removal.

2.3.7 Site Control

The property entrance will be gated and asbestos warning signs posted during removal activities. The mine disposal site activity areas will be gated similarly and signed. Hazardous waste site work zones, including an Exclusion Zone and Contamination Reduction Zone, will be designated using flagging or tape. The Support Zone will be outside the flagged area. The HSP contains procedures for controlling access to each property and the mine disposal site. Policy will be to require HAZWOP training and medical surveillance and respirator fit test documentation unless approved in writing by the SSO and Project CIH. All site personnel will comply with PPE requirements established in the HSP, which, at a minimum, will include hardhat, steel-toed boots, safety glasses, and traffic safety vests when around mobile equipment. All personnel will receive an initial site safety orientation from the SSO. Visitors will be accompanied at all times by the SSO or other Contractor personnel designated by the SSO. The SSO has authority to remove any personnel from the work area for non-compliance with safety and health requirements.

2.3.8 Decontamination

A decontamination trailer will be provided for personnel decontamination. The trailer will contain a clean area, showers, and a dirty area separated by air locks. All personnel performing soil removal activities will be required to shower before leaving the property. Heavy equipment will be decontaminated on a pad using high-pressure washers. A tire wash will be provided for haul trucks. Wastewater will be collected and filtered before discharge.

2.3.9 Emergency Response

The HSP contains a section covering emergency response to medical, fire, and hazardous substance release addressing protection of workers, emergency responders, and the public. The HSP will identify local emergency response resources and contacts. Prior to the start of work the SSO and Project CIH will contact local emergency response agencies and discuss site work and potential emergency scenarios. Site emergencies will be reported according to SMS 49.

Hazardous substance releases will be verbally reported to EPA's OSC and the National Response Center followed by a written report with three days.

2.3.10 Project Documentation

The Project Health and Safety Manual contains required safety and health documentation. The seven day progress report will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work. The Final Report will include a summary of safety and health items from the Progress Reports.

2.4 Document Control

Grace will perform or have performed the following project and document control activities associated with soil removal at the properties.

2.4.1 Work Plan

A draft final Work Plan will be prepared for EPA approval. EPA comments will be amended into the plan and the plan issued as approved prior to initiating work.

2.4.2 Sampling and Analysis Plan – Appendix A

As discussed earlier in Section 2.1 of this Work Plan, Grace is submitting for the EPA and the state's review and comment a Sampling and Analysis Plan (SAP), **Appendix A**. The SAP will ensure that all sampling and analyses will conform to the EPA's direction, approval and guidance regarding sampling, QA/QC, data validation, and chain of custody procedures. Grace will ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate EPA guidance. Grace will use the following documents, as appropriate, as guidance for QA/QC and sampling: Quality Assurance/Quality Control Guidance for Removal Activities; Sampling QA/QC Plan and Data Validation Procedures, Office of Solid Waste and Emergency Response (OSWER) Directive Number 9360.4-01; and Environmental Response Team Standard Operating Procedures, OSWER Directive Numbers 9360.4-02 through 9360.4-08.

Upon request by the EPA, Grace will have its laboratory(ies) analyze samples submitted by the EPA for quality-assurance monitoring. Grace will provide to the EPA and the state the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

Grace will provide to the EPA and the state, or their authorized representatives, split and/or duplicate samples of any samples collected by Grace while performing removal activities at each site. Grace will notify the EPA and the state not less than two days in advance of any sample collection activity. The EPA and the state will have the right to take any additional samples that it deems necessary.

2.4.3 Health and Safety Plan – Appendix B

As discussed earlier in Section 2.3 of this Work Plan, Grace prepared for the EPA and state review and comment a plan that ensures the protection of the public health and safety, including the safety of its on-site workers, during performance of soil removal at the properties. This plan was prepared in accordance with EPA's Standard Operating Safety Guide (November 1984, updated July 1988). In addition, the plan complies with all current applicable OSHA regulations: Hazardous Waste Operations and Emergency Response found at 29 CFR Part 1910.120 Grace will implement the plan during the removal action.

2.4.4 Other Project Execution Plans – Appendices C through G

The plans in Appendices C – G are incorporated into the overall approved Work Plan required for this removal action.

- Appendix C - Traffic Control Plan;
- Appendix D - Dust Control Plan;
- Appendix E - Erosion Control Plan;
- Appendix F - Document Control Plan; and
- Appendix G – Properties #1 and #2 Restoration Plans.

2.4.5 Weekly Reporting

Grace will submit a written progress report to the EPA and to the state concerning actions undertaken every seventh day after the date of receipt of the EPA's approval of this Work Plan until completion of soil removal at a specific property, unless otherwise directed in writing by the OSC. These reports will describe all significant developments during the preceding period, including the actions performed and any problems encountered; analytical data received during the reporting period; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

2.4.6 Final Report

After completion of all soil removal actions at a property, Grace will submit for the EPA's review and approval a final report summarizing the actions taken. This report will also be sent to the state. The final report will conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled OSC Reports and with OSWER Directive No. 9360.3-03 - Removal Response Reporting. The final report will include a listing of quantities and types of materials removed; a listing of the ultimate destinations of those materials; a presentation of the analytical results of all sampling and analyses performed; and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report will also include the following certification signed by the person who supervised or directed the preparation of that report.

> Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

2.4.7 Access to Information

Grace will provide access to all records and documentation relative to the conditions at the properties and the soil removal activities conducted. Such access will be provided to EPA employees, contractors, agents, consultants, designees, representatives and state of Montana representatives. Grace will submit to the EPA and the state the results of all sampling or tests and all other data generated by Grace or its contractor(s), or on Grace's behalf during the soil removal. Such sampling results will be submitted to the EPA and the state within two days of receipt by Grace.

2.4.8 Documentation of Emergency Response Actions and Notification of Releases

If any incident, or change in property conditions, during the soil removal actions conducted, causes or threatens to cause an additional release of hazardous substances from the properties or an endangerment to the public health, welfare, or the environment, Grace will immediately take all appropriate action. Grace will take these actions including, but not limited to the HSP, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Grace will also immediately notify the OSC or, in the event of his unavailability, will notify Steve Hawthorn at 303-312-6061 of the incident or of conditions.

Additionally, in the event of any release of a hazardous substance, Grace will immediately notify the EPA's OSC and the National Response Center at 800-424-8802, as well as the state. Grace will submit a written report to the EPA and to the state within three days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release, and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, not in lieu of, reporting under CERCLA Section 103(c) and Section 304 or the Emergency Planning and Community Right-To-Know Act of 1986, 42 USC Sections 11001 *et seq.*

2.4.9 Modifications

Modifications to any plan or schedule can be made in writing by the OSC or at the OSC's oral direction. If the OSC makes an oral modification, it will be memorialized in writing within five days; provided, however, that the effective date of the modification will be the date of the OSC's oral direction.

If Grace seeks permission to deviate from any approved plan or schedule, Grace's Project Coordinator will submit a written request to the EPA and to the state for approval outlining the proposed modification and its basis.

2.4.10 Additional Removals Action Work Plan

If the EPA, in consultation with the state, determines that additional removal actions at the properties not included in an approved plan are necessary to protect public health, welfare, or the environment, the EPA will notify Grace of that determination. Unless otherwise stated by the EPA, within ten days of receipt of notice from the EPA that additional removal actions are necessary to protect public health, welfare, or the environment, Grace will submit for approval by the EPA a Work Plan for the additional removal actions. Such Work Plan will also be provided to the state. Upon the EPA's approval of the plan, Grace will implement the plan for additional removal actions in accordance with the provisions and schedule contained therein.

2.4.11 Record Retention, Documentation, Availability of Information

Grace will preserve all documents and information relating to work performed under this work plan, or relating to the hazardous substances found on or released from the properties, for ten years following completion of the soil removal actions. At the end of this ten-year period and 30 days before any document or information is destroyed, Grace will notify the EPA and the state that such documents and information are available to the EPA and to the state for

inspection, and upon request, will provide the originals or copies of such documents and information to the EPA. In addition, Grace will provide documents and information retained under this section at any time before expiration of the ten-year period at the written request of EPA.

Grace will maintain a running log of privileged documents on a document-by-document basis, containing the date, author(s), addressee(s), subject, the privilege or grounds claimed (e.g., attorney work product, attorney-client), and the factual basis for assertion of the privilege. Grace will keep the "privilege log" on file and available for inspection. The EPA can, at any time, challenge claims of privilege through negotiations or otherwise as provided by law or the Federal Rules of Civil Procedure.

3.0 Project Organization Chart

URS has developed a project organization that will provide Grace and our staff with clear lines of communication and a solid organization structure. **Figure 3-1** shows the proposed organization chart for the project. The following paragraphs provide brief descriptions of key staff roles and responsibilities, along with summaries of past work experience.

Paul Peronard – EPA On-Site Coordinator

John Constan – Montana Department of Environmental Quality

Jim Stout, Project Manager, will be responsible for managing the project on a daily basis and will be the single point of contact for Grace. His tasks will include the management of all design, construction, and removal activities, providing leadership and guidance to staff, communicating with Grace on project status, and overseeing scheduling and cost control activities.

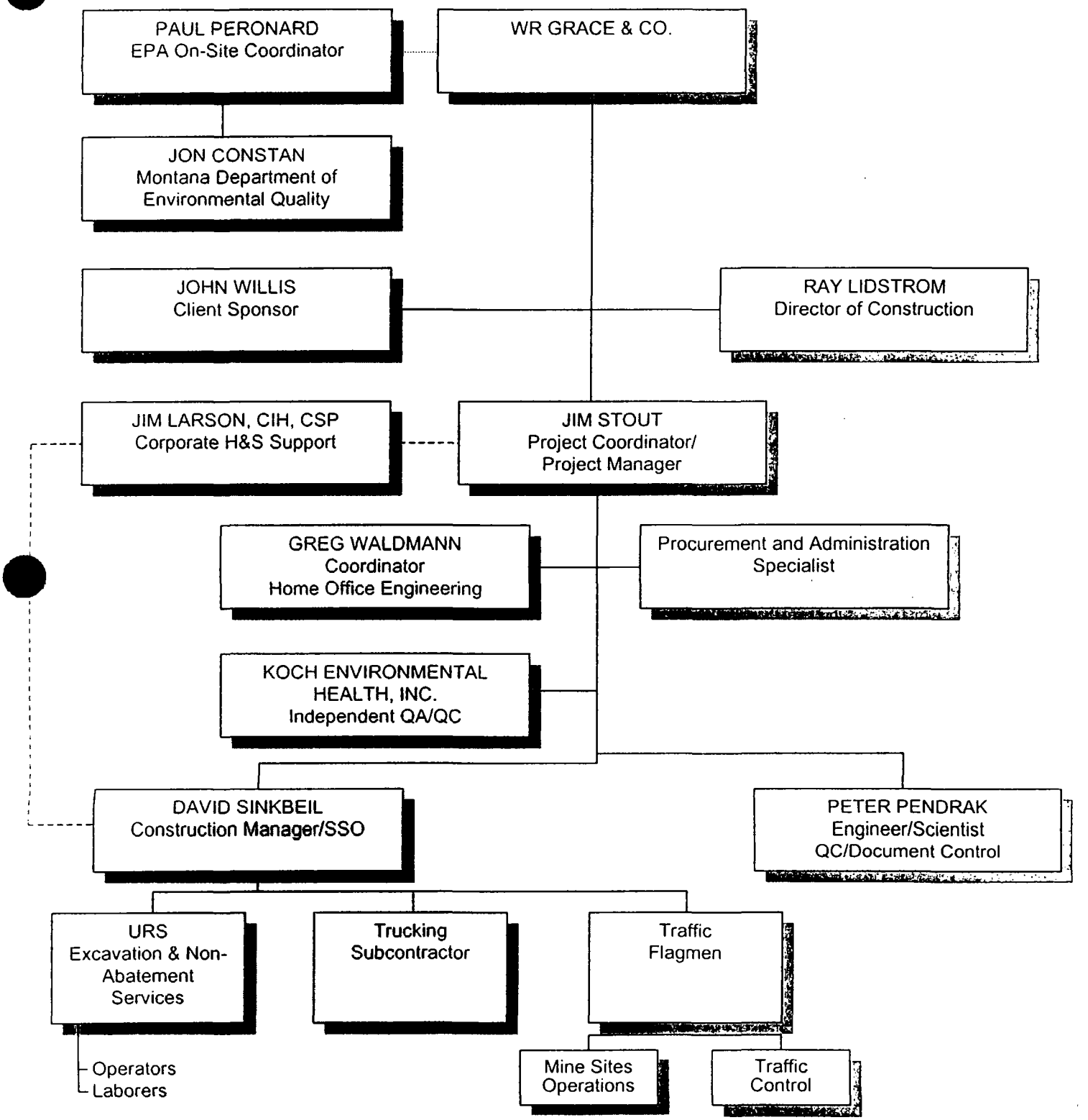
Mr. Stout has over 15 years of experience in industrial hygiene and environmental health. Currently, he is Project Manager for the Export Plant removal action, Libby Montana. He has conducted hazardous surveys, produced the bid documents and specifications, written the project design, and oversees cleanup and air monitoring at project sites.

Mr. Stout has managed a number of asbestos assessment surveys, generated reports, developed operation and maintenance plans, and has overseen project air monitoring and on-site analyses. His work has spanned a number of sites including, but not limited to, F.E. Warren Air Force Base; several power plants in Colorado, Michigan, and Ohio for the Public Service Company of Colorado; Lockheed Martin; Sioux Falls Public Schools; and Ohio University. Mr. Stout has also directed the asbestos removal efforts for the Cinderella City, Denver project, DPR/Intel building, Colorado Springs, and has conducted several asbestos surveys at sites on the Army Depot in Pueblo, Colorado.

Mr. Stout is certified in Sampling and Evaluating Airborne Asbestos, Dust – NIOSH 582. He is also an Asbestos Trainer certified by the State of Colorado.

Mr. John Willis, Client Sponsor, is URS's Grace client sponsor and will act as liaison to keep Grace's senior management apprised of the overall status of the project. Using copies of the weekly reports, Mr. Willis will review the progress of the project, discuss status and issues

Figure 3-1. Organizational Chart
Kootenai River Properties #1 and #2



resolution with Jim Stout and Ray Lidstrom, and then update the status to Grace's senior management.

Mr. Ray Lidstrom, Director of Construction, will provide overall construction oversight and expertise to the project. He will consult with Jim Stout and John Willis as needed. He will focus the project team on achieving a quality closure while optimizing personnel and environmental safety, cost efficiency, and milestone compliance. Mr. Lidstrom has 38 years of direct construction and related operations experience. His responsibilities have included direct performance and staff oversight for remedial investigations, services, construction projects, and treatment plant operations. His broad experience includes administration, engineering management, and direct supervision of Remedial Investigation/Feasibility Study (RI/FS) design, remedial implementation, construction, and facility operations for a broad range of industrial and United States Army Corps of Engineers (USACE) applications. Mr. Lidstrom has had training and experience in union-management negotiations, professional project scheduling, and management. Additionally, he is both trained and experienced in emergency response, hazardous material categorization, and hazardous material transportation.

Mr. Jim Larson, Corporate Health and Safety Support, will be responsible for ensuring that corporate health and safety procedures are developed and followed on this project. Mr. Larson will coordinate with the on-site Health and Safety Officer, David Sinkbeil, to ensure that the appropriate health and safety procedures are followed.

Mr. Larson is both a Certified Industrial Hygienist and a Certified Safety Professional. He has over 20 years of experience in industrial hygiene, occupational safety, and environmental health. His consulting experience ranges from field work to managing of projects for industrial clients, hazardous waste operations, construction projects, and Department of Defense and Department of Energy facilities. As a Regional Health and Safety Manager, Mr. Larson oversees the implementation of health and safety program for Western Region offices and field projects. He develops safety and health programs, provides training, develops and reviews safety and health plans for hazardous waste and construction operations, conducts internal health and safety evaluations of offices and projects, and performs incident investigations.

Mr. Gregory Waldmann, Home Office Engineering Support, will be responsible for engineering assistance in design and final grading as required. His experience in project management, environmental compliance audits, and natural resource management (including

survey crew and subcontractor management) provides him with a varied background for surveying and design.

Mr. Waldmann is certified by the Ecological Society of America as an Associate Ecologist, listed with the EPA Region Radon Proficiency Program and the Colorado Asbestos Building Inspector Program.

Mr. Dave Sinkbeil, Construction Manager/Site Safety Officer, has 12 years of experience managing Superfund remediation and construction projects related to historic copper mining operations. He also has 10 years of experience performing various mine planning activities and Professional Engineer certifications of design/construction projects at surface coal mines. Mr. Sinkbeil is a certified Professional Engineer in the State of Montana (#13702PE).

Mr. Sinkbeil has supervised a $2.5 million remediation of 50,000 cubic yards of arsenic-contaminated soil. In this capacity, he directed the subcontractor performing quality assurance/quality control testing of the treatment process and preparation of as-built drawings. He performed construction contract administration including documenting and reporting progress, negotiating design changes and change orders, processing pay requests, and performing claims management and contract close-out.

Mr. Peter Pendrak, URS QC/Document Control, is a Staff Hydrologist at the URS/Dames & Moore Denver office. His work experience over the past five years at Dames & Moore includes a broad array of water resources projects. He has participated in several major surface water remedial investigations at mining and petroleum refinery sites under both the CERCLA and RCRA processes. For each of these projects, Mr. Pendrak has assisted in developing water quality monitoring networks, quality assurance/quality control programs, and implementation of water quality and hydrologic data collection programs to assess the extent and degree of water resource impacts. Monitoring networks often included automated collection of meteorologic data to assist in collection of real time water quality data.

Mr. Pendrak has served as a contributing hydrologist for several EIS and EA studies following NEPA guidelines for projects including oil and gas development. He performed extensive data evaluation including quality assurance/quality control, and development of detailed reports subject to regulatory review.

4.0 Implementation Schedule

Figure 4-1 is the proposed schedule for the voluntary soil removal activities at the KDC Kootenai River Properties #1 and #2 described in this Work Plan, excluding weather delays and contingencies for unknowns that may be encountered that encumber activities. The individual tasks shown on the schedule correspond to the Work Breakdown Structure (WBS) discussed in Section 2.

To complete removal actions from work plan approval through grading and restoration of the project, with weather contingency allowances, will take approximately 2½ months from the date of EPA approval.

The project consists of three basic groups of activities, including: (1) Project Start-up, 2) Remedial Activities and 3) Project Closeout.

Project Start-up. This work includes preparation of project plans, engineering and procurement activities, mobilization to each site, and preparation of the site for remedial activities, surveying and initial demarcation of areas for removal.

Remedial Activities. This work includes soil removal and decontamination activities for two properties. This work also includes the transportation and disposal of all waste materials to the mine site. The excavated areas will be graded and seeded upon removal of contaminated soils. The time for this effort requires the initial survey and inspection to determine quantity removal and an intermediate survey to prepare a final grading plan. Time required is a function volume to be removed and transported.

Project Closeout. This work will include a short demobilization period from each property. A draft and final report summarizing field activities and results will be prepared over a three-week period after each property is cleared.

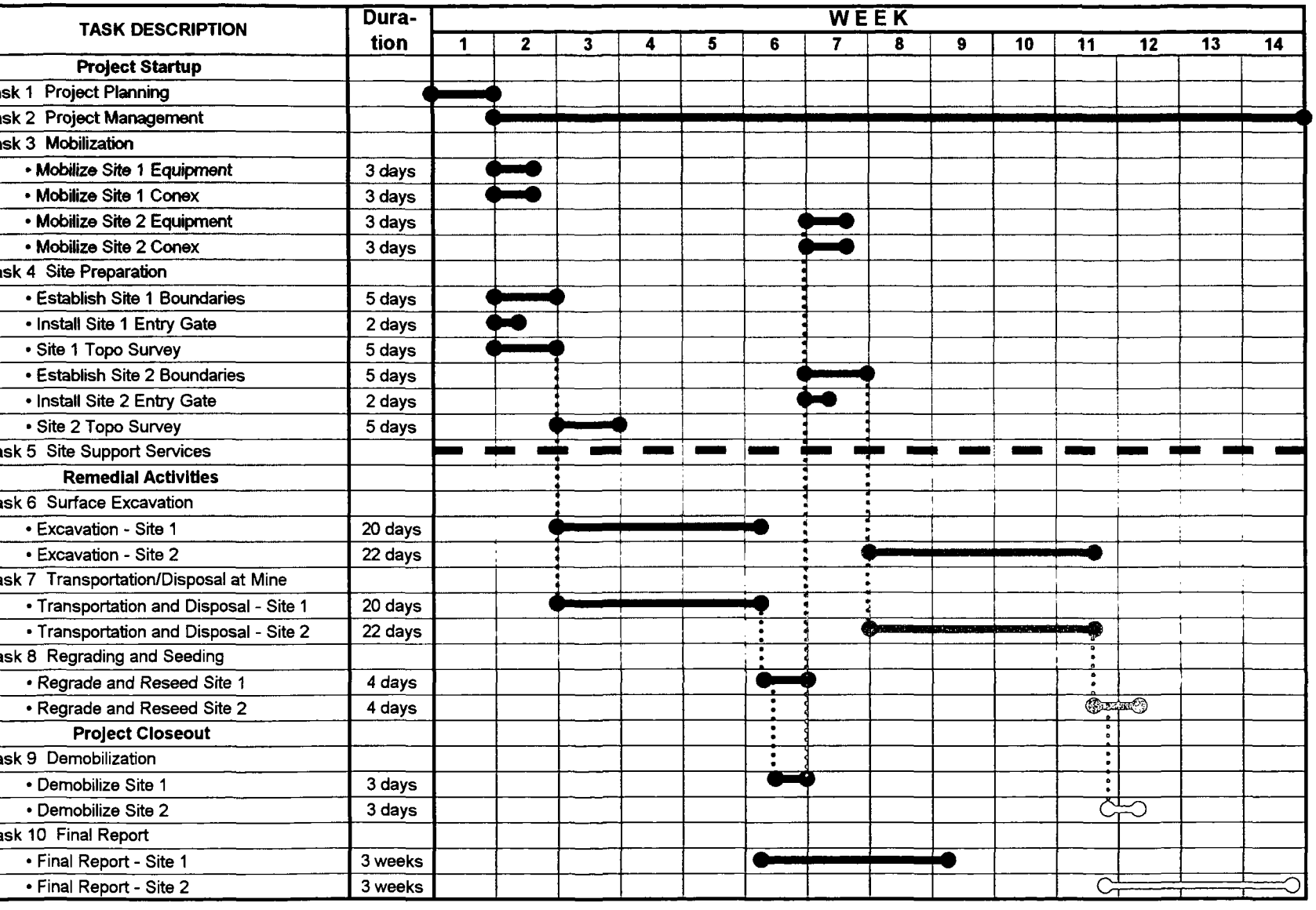
Color Chart(s)

The following pages contain color that does not appear in the scanned images.

To view the actual images, please contact the Superfund Records Center at (303) 312-6473.

Figure 4-1
Soil Removal - KDC - Kootenai River Properties - Sites 1 and 2

Task No.	TASK DESCRIPTION	Duration
	Project Startup	
Task 1	Project Planning	
Task 2	Project Management	
Task 3	Mobilization	
	• Mobilize Site 1 Equipment	3 days
	• Mobilize Site 1 Conex	3 days
	• Mobilize Site 2 Equipment	3 days
	• Mobilize Site 2 Conex	3 days
Task 4	Site Preparation	
	• Establish Site 1 Boundaries	5 days
	• Install Site 1 Entry Gate	2 days
	• Site 1 Topo Survey	5 days
	• Establish Site 2 Boundaries	5 days
	• Install Site 2 Entry Gate	2 days
	• Site 2 Topo Survey	5 days
Task 5	Site Support Services	
	Remedial Activities	
Task 6	Surface Excavation	
	• Excavation - Site 1	20 days
	• Excavation - Site 2	22 days
Task 7	Transportation/Disposal at Mine	
	• Transportation and Disposal - Site 1	20 days
	• Transportation and Disposal - Site 2	22 days
Task 8	Regrading and Seeding	
	• Regrade and Reseed Site 1	4 days
	• Regrade and Reseed Site 2	4 days
	Project Closeout	
Task 9	Demobilization	
	• Demobilize Site 1	3 days
	• Demobilize Site 2	3 days
Task 10	Final Report	
	• Final Report - Site 1	3 weeks
	• Final Report - Site 2	3 weeks



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APPENDIX A

SAMPLING AND ANALYSIS PLAN

KDC KOOTENAI RIVER PROPERTIES #1 AND #2
LIBBY, MONTANA

1.0 Introduction

The following describes the confirmation soil sampling and proposed air monitoring/ industrial hygiene strategies to be provided by Koch Environmental Health, Inc. (KEH) for URS in support of the soil removal of AIM and vermiculite at the KDC Properties #1 and #2 adjacent to the Kootenai River, Libby, MT. Please note that this sampling plan has been designed to incorporate project-specific changes and/or provide flexibility in altering the plan to safely meet the intent and goals of the project. The air monitoring plan has been developed by a Certified Industrial Hygienist/Asbestos Project Designer and may be altered in the field based on actual project conditions. Any changes to this plan will be coordinated through URS or a designated representative, and will be implemented only after approval by URS and the EPA. KEH will support URS in achieving the objective of the project in the most safe and healthful manner possible and in meeting or exceeding OSHA, EPA, and State of Montana requirements for asbestos control.

All monitoring work will be conducted under the direct supervision of a staff Certified Industrial Hygienist (CIH) in accordance with applicable project and regulatory requirements with regard to asbestos control. KEH Industrial Hygienists will use the most efficient sampling and analytical methods and will provide those services necessary to meet the safe completion of Aim and vermiculite removal. KEH will conduct all asbestos work using personnel trained and certified in accordance with requirements of the EPA (AHERA) and the State of Montana with respect to Asbestos Professionals.

2.0 Air Monitoring and Sampling Plan

All air monitoring and sampling for this project will be conducted in accordance with the project requirements with the intent of meeting the goals of the project in a safe and healthful manner. The KEH Project Manager will coordinate all sampling activities with the designated URS representative to ensure that all affected removal areas and appropriate monitoring points (i.e., decon trailer, perimeter, etc.) are monitored by an experienced asbestos professional. All visual inspections and air monitoring will be conducted in accordance with EPA and State of Montana requirements regarding asbestos control. The air sampling plan for this project involves monitoring via either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM) methodologies in multiple areas.

KEH will work within the project requirements to implement a sampling strategy designed to efficiently and economically determine airborne asbestos (fiber) levels in and around each work area in the interest of protecting human health and the environment. PCM air samples will be collected as appropriate utilizing the NIOSH 7400 Method, A Counting Rules. PCM samples will be used as a general means for monitoring airborne fiber levels in and around each work area, although this type of analysis is non-specific for asbestos fibers. PCM monitoring is useful in tracking and determining airborne fiber levels and provides an efficient and economic means to assess airborne fiber concentrations as they relate to asbestos removal.

TEM analysis is specific for asbestos fibers and can be used as a tool for determining actual asbestos concentrations in air samples collected. TEM sampling will be used for asbestos determination in airborne samples, as necessary, and will be used for background sampling in all work areas, as required. In some cases, both PCM and TEM samples may be collected simultaneously (i.e. side-by-side) for use in determining effective fiber control strategies.

Four background perimeter air samples will be collected for TEM analysis prior to intrusive work at each property to determine ambient airborne contaminant levels. Perimeter air samples will be collected on two separate days prior to intrusive work at each property at four locations. Perimeter samples will be collected during each day of soil removal operations for PCM analysis at the same locations as background samples. Figure A-1 shows proposed locations for background and perimeter sampling. A fixed final location will be field established away from obstructions and will be documented.

2.1 Sample Collection

Phase Contrast Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm^2. Transmission Electron Microscopy (TEM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm^2. All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos removal is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and types (e.g. PCM, TEM) of samples collected in and around each work area. Any changes to sampling strategies will be coordinated through the designated URS representative and will be implemented only to add value to the generation of data and to add efficiency to the air monitoring program.

Figure A-1. Proposed Locations for Background and Perimeter Air Monitoring

(Awaiting survey information for final layout. Four locations will be marked—Center of each boundary side)

Depending upon weather conditions, high volume air samples will be collected at flow rates between 5.0 and 10.0 liters per minute (L/m) for PCM and TEM sampling. Low volume pumps for personal samples will be operated at .5 to 2.5 liters per minute. KEH representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all sampling periods. KEH will maintain a primary flow calibration instrument on-site at all times during this project and will maintain calibration records on site for review by the URS representative.

Portions of samples not destroyed during analysis will be archived.

2.2 Laboratory Analysis

To ensure state-of-the-art quality control, all analysis will be conducted by independent laboratories provided by URS that are accredited by the American Industrial Hygiene Association (AIHA) and/or the National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of PCM and TEM air samples. Selected samples will be analyzed on site by an independent laboratory to ensure rapid transmission of data and to assist in developing dynamic asbestos control strategies. Results of all air samples will be posted in or around the affected work area within 24 hours for PCM or upon laboratory forwarding of analysis for TEM.

2.3 CIH Review and Sign-Off

Upon completion of each property removal action, a final technical report will be generated by KEH that describes the project activities, personnel monitoring, and air sample results. All standard operating procedures and technical reports have been developed by KEH's staff CIH to ensure that our clients are provided reliable technical data. All projects conducted by KEH for URS will be performed under the supervision of a staff Certified Industrial Hygienist. All technical reports for this project will be developed, reviewed, and signed by a staff Certified Industrial Hygienist.

2.4 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. The inventory for air sampling consists of up to 40 high volume, adjustable sampling pumps, up to 30 low-volume battery-operated pumps, and all of the necessary support

equipment, including calibrated rotameters, primary flow standards, and associated electrical and personal protective equipment. All of the rotameters are calibrated against a primary flow calibration standard (Dry Cal DC Lite) quarterly. An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e. battery) pumps will be maintained on site to support air monitoring requirements for the project.

KEH utilizes Thomas brand electric high-volume sampling pumps capable of running at 1-15 liters per minute continuously for multiple shifts. KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pump and battery packs will be maintained on site to adequately monitor the project on a daily basis and to allow for charge-discharge cycles, pump failures, and backup capabilities. The inventory also holds other types of IH sampling equipment including respirable particulate cyclones, real-time sampling instrumentation, exposure monitoring apparatus, and various types of media for air sampling of a variety of contaminants. An excellent working relationship with nationwide safety suppliers and laboratories enable KEH to secure other types of sampling equipment as necessary to conduct any type of industrial hygiene evaluation.

3.0 Soil Confirmation Sampling

Following surface soil excavation activities at each property to visually clean, KEH will collect samples of surface soil to verify that excavated areas are free from asbestos. URS anticipates excavating approximately 8 to 9 acres of soil to a depth of 6 to 18 inches. Areas identified as containing vermiculite at greater depths will be excavated until the material is no longer visible. See Figure A-2 for general locations of areas for excavation at each property. Visual inspection will be used during the project start-up phase to finalize removal areas for each site.

The finally selected excavated areas based upon field definition of areas to be established upon mobilization, will be divided into 100 ft. x 100 ft. grids. Five composite verification samples will be collected from the excavated surface within each of these grids. To determine the location to collect the samples, each 100 ft. x 100 ft. grid will be subdivided into 20 ft. x 20 ft. subgrids (25 subgrids per grid). Each of the composite samples will consist of a soil aliquet from five adjacent subgrids. Samples of surface soil will be collected at the approximate center-point of each subgrid (1, 2, 3, 4 and 5; 6, 7, 8, 9 and 10, etc.). Grids will be laid out over the

Figure A-2. General Locations of Areas for Excavation at each Property

(Areas will be marked on the Survey)

Property #1 and #2 areas to be identified for excavation. Partial grids will be sampled and composited in five aliquets or lesser units for areas without five.

Soil verification samples will be analyzed using the PLM technique. If the soil within a grid is found to exceed cleanup criteria, an additional 6-inches of soil will be removed from the respective 100 ft. x 100 ft. grid. Maximum depth for non-visual excavation is 18 inches.

Maps and grids will be developed upon mobilization and identification of areas to be excavated, based upon visual inspection for vermiculite. The maps will be forwarded to the EPA-OSC for approval of sample locations.

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APPENDIX B

HEALTH AND SAFETY PLAN

URS RADIAN HEALTH AND SAFETY PLAN

SIGNATURE PAGE

Project Name:	Removal of Asbestos and Vermiculite
Location:	KDC Kootenai River Properties, Libby, Montana
Project Number:	805169
Client:	WR Grace & Co.

REVIEWED AND APPROVED BY:

Signature:_____ Date Approved: _____

Jim Larson, CIH, CSP
Project CIH,
Regional Health and Safety Manager

Signature: _____ Date Approved: _____

Jim Stout, Project Manager

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Attachments

List of Tables

List of Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
APR	Air-purifying respirator
CDL	Commercial driver's license
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfm	cubic feet per minute
CFR	*Code of Federal Regulations*
CIH	Certified Industrial Hygienist
COE	Corps of Engineers
COE	U.S. Army Corps of Engineers
CPR	Cardiopulmonary resuscitation
CQC	Construction Quality Control
CRZ	Contamination reduction zone
CSD	Construction Services Division
dBA	Decibel in the A-weighted scale
DOT	Department of Transportation
DRIs	Direct reading instruments
EMS	Emergency medial services
EPA	Environmental Protection Agency
EZ	Exclusion Zone
GFCI	Ground fault circuit interrupter
gpm	gallons per minute
H&S	Health & Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High-efficiency particulate air (P100 filter)
HSP	Health & Safety Plan
IDLH	Immediately dangerous to life or health
KDC	Kootenai Development Company
KEH	Koch Environmental Health, Inc.
KRP's	Kootenai River Properties
LEL	Lower explosive limit
MDS	Medical Data Sheet
mg/m^3	milligram per cubic meter
mph	miles per hour
MSDS	Material Safety Data Sheet
NA	Not applicable
NE	No level established
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety & Health Administration
PCM	Phase Contrast Microscopy
PELs	Permissible exposure limits
PID	Photoionization Detector
PjM	Project Manager
PPE	Personal protective equipment

List of Acronyms, continued

psi	pounds per square inch
REL	Recommended exposure limit
RPM	Revolutions per minute
SHSO	Site Health & Safety Officer
SMS	Safety Management Standard
SOP	Standard Operating Procedure
STEL	Short-term exposure limit
SZ	Support Zone
TEM	Transmission Electron Microscopy
TLV®	Threshold limit values
TWA	Time-weighted average
USCG	U.S. Coast Guard

1.0 Introduction

The health and safety (H&S) requirements for the URS Construction Services Division (CSD) and subcontractor personnel engaged in the activities associated with the removal of asbestos and vermiculite at Kootenai Development Company's (KDC) Kootenai River Properties (KRP's) #1 and #2 at Libby, Montana, are defined in this Health and Safety Plan (HSP). This HSP addresses general site H&S requirements and, specifically, removal of soils, and vermiculite; preparation of a disposal location at the mine; transportation and disposal of materials; and property restoration. Standard H&S requirements, protocols, and procedures are presented in the URS Corporate Health and Safety Program and Management System Manual and Safety Management Standards (SMSs) (1999) referenced in this HSP, an electronic copy of which will be maintained on site. URS will maintain on site a project Health and Safety Manual. The manual will contain this HSP prepared by the Project Certified Industrial Hygienist (CIH) and the required H&S certifications and documentation.

The HSP identifies the potential hazards present at KRP's work sites and the protocols, equipment, and control measures to be implemented in order to protect workers from exposure to these hazards. Background information on the KRP's site and the work tasks associated with this project are described in the Work Plan for the project. This HSP describes the key H&S organization and personnel responsible for implementing the HSP; their qualifications and responsibilities; training and medical surveillance requirements for H&S and field personnel, including copies of certificates and other training and medical surveillance documentation for URS personnel assigned to the KRP's project; types and levels of personal protective equipment (PPE), control measures required during normal conditions, and contingency PPE and controls to be used for more extreme conditions; site and personal monitoring requirements; site control and security measures; decontamination protocols; reports and recordkeeping; and emergency response procedures.

The HSP was prepared in accordance with H&S standards, provisions, and requirements specified in the following regulations and guidance documents:

- U.S. Environmental Protection Agency (EPA) Standard Operating Safety Guides. (EPA 1988);
- Title 29 *Code of Federal Regulations* (CFR) Section 1910 (29 CFR 1910), Occupational Safety and Health Administration (OSHA) General Industry Standards;
- 29 CFR 1926, OSHA Safety and Health Regulations for Construction;

- 29 CFR 1910.120 OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER);
- Army Corps of Engineers' Safety and Health Requirements Manual (COE 1996);
- National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards (NIOSH 1997);
- NIOSH, OSHA, U.S. Coast Guard (USCG), EPA. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH 1985);
- American Conference of Governmental Industrial Hygienists (ACGIH) 1999 TLVs® and BEIs®, Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices (ACGIH 1999);
- URS Corporation Health and Safety Program and Management System (URS 1999) SMS 17, Hazardous Waste Operations; and
- American National Standards Institute (ANSI). Standards for emergency eye wash/showers (ANSI Z358.1-1998), safety glasses (ANSI Z87.1-1989), hard hats (ANSI Z89.1-1997, Type I, Class E), hearing protection (ANSI S3.19-1974), Tyvek® coveralls (ANSI/ISEA 101-1996, sizing requirements), safety boots (ANSI Z41 PT 91 M/F I/75 C/75).

1.1 Site Description

See the project Work Plan.

1.2 Planned Activities

The HSP identifies the procedures, and/or policies designed to address H&S for the following work activities at the Libby site:

- Preparation of site property;
- Excavation of soil and vermiculite;
- Transportation and disposal of waste; and
- Property restoration.

The following individual tasks to complete the removal action activities, described in detail in the project Work Plan, are addressed in **Table B-2**, Task Hazard Analysis of this HSP:

- Mobilization;
- Site preparation;
- Transportation to and disposal at mine site;

- Surface excavation;
- Grading and seeding (site restoration); and
- Demobilization.

2.0 Health And Safety Organization

As with all aspects of fundamental business operations, implementing and enforcing H&S requirements is a team effort on the part of URS and subcontractor personnel. However, because of the complex and dynamic nature of worker safety policy, a team of individuals devoted specifically to H&S is required to aid URS management in administering an effective and efficient program. The following describes the URS H&S organizational structure and summarizes the primary areas of responsibility.

2.1 URS Management

URS management is committed to a safe and healthful work environment. URS believes that health and safety is a line responsibility of project management and employees. To that end, management will work toward ensuring that all project management and employees comply with H&S requirements and will institute corrective actions whenever the need for such actions becomes apparent. With advice from the Corporate H&S Director and Project Certified Industrial Hygienist (CIH), URS management will initiate immediate modifications or corrective actions directly through the Project Manager (PjM).

2.2 Corporate Health and Safety Director

The URS Corporate H&S Director, Phil Jones, CIH, is responsible for developing and administering Corporate H&S programs nationwide. His duties include:

- Establishing company or corporate H&S policy;
- Developing SMSs;
- Selecting H&S staff;
- Developing and managing the H&S budgets;
- Establishing requirements and criteria for H&S equipment;
- Briefing management on H&S concerns and corrective actions; and
- Appraising the corporate H&S program performance.

2.3 Project Certified Industrial Hygienist (CIH)

The Project CIH, Jim Larson, CIH, CSP, is responsible for administering the URS program for URS Radian CSD projects. His primary responsibilities as they relate to the KRP's project include:

- Develop and approve this HSP;
- Review H&S qualifications of URS and subcontractor personnel assigned to perform field work at KRP's work sites;
- Develop the project Safety and Health Manual;
- Conduct periodic evaluations of the KRP's work sites for compliance with policies and procedures specified in this HSP and Corporate H&S Program;
- Review project logs, inspection, and air monitoring reports;
- Direct liaison activities among URS, WR Grace and Company (Grace), OSHA, and other federal, state, and local government agency personnel responsible for H&S issues; and
- Assist management in the investigation of injuries, illnesses, and significant incidents that occur at the KRP's sites and provide URS CSD management with reports of findings.

2.4 Site Health And Safety Officer

Mr. David Sinkbeil has been assigned as the Site Health and Safety Officer (SHSO). He will coordinate and monitor site-specific H&S concerns at Libby work sites. The SHSO will be on site during all work activities at KRP's. Only employees who satisfy the training and medical surveillance requirements specified in this HSP and have a comprehensive understanding of project activities are allowed to serve as a SHSO. Consistent with URS's approach that health and safety is a line responsibility, the SHSO will also serve as Construction Manager responsible for overseeing field activities at KRP's in addition to his H&S responsibilities. The SHSO, in addition to other project-related duties, will have the following primary H&S responsibilities:

- Ensure field activities are conducted in accordance with the provisions and requirements of the HSP and URS H&S Program;
- Verify that personnel are medically qualified, trained, and have reviewed and are prepared to implement the procedures defined in the HSP;
- Conduct and document initial site-specific training for all site personnel entering designated or contaminated work zones of the KRP's. The training will cover the use of safety, health, respiratory, and protective equipment, as well as the safety and security procedures to be implemented at the work site;
- Conduct and document follow-up site-specific training for new personnel or visitors, subcontractor personnel entering designated or contaminated KRP's work zones;
- Conduct daily site safety briefings covering specific H&S items for the work to be performed that day;

- Prepare, sign, and maintain training logs on site. The logs are to document personnel in attendance, the date/time of training sessions, topics covered, equipment demonstrated and used by personnel, prohibitions, and other pertinent information;
- Complete daily safety inspection and logs and complete the seven day progress report that will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work;
- Observe PPE use for compliance with the HSP;
- Observe and assess air monitoring conducted by Koch Environmental Health, Inc. ([KEH] the air monitoring contractor), and URS personnel. Ensure monitoring of personal exposure in the work area, area monitoring, calibration of instruments, and weekly reporting of air monitoring results;
- Control work site access, establish and maintain (when necessary) work zone boundaries and access points;
- Assess daily decontamination procedures for compliance with the HSP;
- Ensure work sites are clean and free from debris and wastes;
- Ensure hazardous materials and fuels are safely handled, stored, and disposed of and that Material Safety Data Sheets (MSDSs) are on file for all chemicals used on site and that chemical containers are properly labeled per OSHA hazard communication requirements;
- Develop and establish emergency procedures, ensure appropriate emergency response personnel are notified in the case of an imminent health risk or other emergency, and coordinate/assist response personnel as necessary;
- Immediately report verbally any deviations from the HSP, near-misses, injuries, illnesses, and significant incidents that occur at the KRP's site to the PjM and Project CIH;
- Assist in the investigation of all accidents, injuries, illnesses, and incidents occurring on site; and
- Order shutdown of field activities on determination of an imminent H&S hazard and advise URS and subcontractor personnel of the hazard.

2.5 Employees

Each URS employee must do his/her part to reduce potential hazards in the work environment. Field team personnel are responsible for taking all reasonable precautions to prevent injury to themselves, fellow workers, subcontractor personnel, site visitors, and the public. Personnel are required to review and adhere to the provisions of this HSP and to report all accidents and any unsafe conditions to the SHSO. Specifically, employees are required to:

- Evaluate the hazards associated with their work assignment;

- Comply with all H&S requirements applicable to their work assignments;
- Report to the SHSO all unsafe conditions, work-related injuries, or illnesses;
- Participate in training, medical surveillance, and workplace monitoring programs applicable to their work assignments.

NOTE: Any individual observing an operation that presents a clear and imminent danger to the environment or to the health and safety of site personnel, subcontractors, visitors, or the public has the authority to initiate a stop-work action and then notify their supervisor.

2.6 Subcontractor and Vendor Personnel

Implementation of the policies and procedures of the HSP is intended to reduce the potential for injury and illness with respect to URS employees. Subcontractors will also benefit. Subcontractors are expected to comply with the requirements of the HSP as well as their own H&S procedures. However, neither URS management nor employees can protect subcontractors as well as those parties can protect themselves. If a subcontractor's unsafe practices are observed, the SHSO is to be immediately informed so that subcontractor supervisory personnel can be advised. Subcontractors will be held financially responsible for any shutdown or delays caused by their employees' unsafe work practices.

3.0 Training and Medical Surveillance Requirements (SMS 17, 24)

Field personnel working within a hazardous waste site designated work zone (e.g., Exclusion Zone [EZ] or Contamination Reduction Zone [CRZ)]) during soil excavation, and transportation and disposal at the mine site must have successfully completed classroom and field training for hazardous waste site operations, in accordance with OSHA HAZWOPER requirements (29 CFR 1910.120[e]). Training requirements for the KRP's include successful completion of 40-hour initial H&S training, 3-day site-supervised field work, and annual 8-hour H&S refresher. In addition, the SHSO will have 8-hour HAZWOPER Supervisor training. At least two URS field team members will have a current valid certification in standard first aid and cardiopulmonary resuscitation (CPR).

Heavy equipment operators will be qualified on the basis of training and experience as determined by the SHSO. Haul truck operators will have current commercial drivers' licenses (CDLs).

URS field personnel are required to participate in the URS Corporate Medical Surveillance Program, in accordance with the requirements specified by OSHA (29 CFR 1910.120[f]) for cleanup operations at uncontrolled hazardous waste sites. All field personnel potentially exposed to hazardous substances/health hazards, such as those in designated work zones, must have completed either a baseline or an annual medical surveillance physical examination and must have been found to be medically fit and qualified to wear respiratory protective equipment prior to their assignment to the KRP's.

The Medical Surveillance Program in every URS office nationwide is overseen by Workcare, an occupational medicine consultant firm located in Orange, California (800-455-6155). The exams are conducted by licensed physicians approved and overseen by Workcare's Dr. Peter P. Greaney, a physician board-certified in occupational medicine. The results of each employee's physical exam and work history are thoroughly reviewed by Dr. Greaney, who determines whether individuals are medically qualified to work at a hazardous or other work site, in accordance with the provisions of 29 CFR 1910.120, and 29 CFR 1910.34 for the use of respiratory protection.

KEH air monitoring personnel will participate in a medical surveillance program, in accordance with the requirements specified by OSHA (29 CFR 1910.120 [f]), and will be medically fit and qualified to wear respiratory protective equipment prior to their assignment to the KRP's.

Initial site-specific H&S training is to be conducted by the SHSO and other designated and qualified individuals prior to initiating on-site activities. The training will include instruction in the use of safety equipment and PPE, hazards known or potentially present at the work site, each individual's assigned work tasks and responsibilities, monitoring activities, safety and security procedures, review of the HSP, and other safety requirements unique to the work site. Subsequent to the initial safety trainings, follow-up training sessions will be conducted for new personnel or visitors. Additional follow-up training will also be conducted whenever significant changes in work tasks or work-site conditions may affect worker safety.

Daily "tailgate" safety briefings will be conducted by the SHSO and qualified designee prior to each day's work activities. The tailgate will address H&S issues specific to the work for the day. All training will be appropriately documented by the SHSO, including time/dates of the training, topics covered, and individuals attending the training.

Training and medical surveillance requirements for project personnel working at different levels of participation are summarized in Table B-1.

Table B-1. KRP's Site Health and Safety Training Requirements

Requirement			Employee Participation Level		
			HAZ S	HAZ 1	KEH
Medical	i.	Baseline Medical Examination (29CFR1910.120[f])	X	X	
	ii.	Annual Medical Examination (29CFR1910.120[f])	X	X	
	iii.	Asbestos Medical Examination	X	X	X
Training	i.	40-hour Initial Health & Safety Training	X	X	X
	ii.	Qualified for Respirator Use (includes fit test)	X	X	X
	iii.	24-hour Field Activities Training	X	X	X
	iv.	Site-Specific Training	X	X	X
	v.	Annual 8-hour Refresher Training	X	X	X
	vi.	8-hour Management and Supervisor Training	X		
	viii.	Asbestos Worker Certification			
	ix.	Asbestos Supervisor Certification			
	x.	First Aid *	X	X	
	xi.	Annual CPR *	X	X	

Notes:

X Indicates training requirement
* At least two persons at the site will have current valid certification to administer first aid and CPR.

Levels of Participation

HAZ S: On-site supervisory personnel potentially exposed to hazardous substances/health hazards. This level includes site supervisors and SHSOs.

HAZ 1: General site workers, including equipment operators, general laborers, and haul truck drivers engaged in hazardous substance removal, transportation, or disposal activities who may, or potentially may, be exposed to hazardous substances/health hazards.

KEH: KEH asbestos air monitoring personnel.

4.0 Hazard Assessment

In accordance with the URS (1999) Corporate Health and Safety Program and Management System Manual, a Project Hazard Analysis, which is included in the Project H&S manual, has been conducted to identify the URS SMSs relevant to the KRP's project. This section of the HSP provides an assessment of the specific chemical, biological, and assorted physical and construction-related safety hazards anticipated during the work tasks identified in Subsection 1.2. The Task Hazard Analysis in **Table B-2** provides a summary of the work tasks, potential hazard(s) associated with the tasks, and the control measures that will be implemented. Relevant SMSs are referenced.

4.1 Chemical Hazards (SMS 2, 43)

This section identifies the hazardous substances of concern that may pose a potential exposure risk to field personnel. The substances include asbestos and total particulates. The principal route of exposure to these substances is inhalation, and to a much lesser degree, ingestion of asbestos fibers. Table B-3 summarizes the general toxicological information (e.g., potential target organs, health effects, medical monitoring in case of exposure) for these substances. **Table B-4** identifies OSHA-enforceable worker exposure standards, or Permissible Exposure Limits (PELs). Exposure to any of these chemicals in excess of the PELs is prohibited without appropriate respiratory protection.

Personnel may also be exposed to fuels for diesel- or gasoline-powered heavy equipment used at the KRP's to excavate, scrape, compact, haul materials, etc., and calcium chloride used for dust suppression. MSDSs will be maintained and available at the Libby field trailer for all hazardous materials that are used or stored at the work site. All chemical containers will be labeled according to OSHA hazard communication requirements.

4.2 Biological Hazards

Biological hazards that may be encountered at Libby work sites consist primarily of insects, spiders, and snakes. Individuals with allergies to insects (e.g., bee or wasp stings) should remember to note this fact on the Medical Data Sheet (MDS) they are required to complete, or to remind the SHSO prior to the start of field activities. A first aid kit will be available at the work site to treat minor skin irritations, stings, and bites.

Table B-2. Task Hazard Analysis

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation • Movement of material and equipment to site. • Installation of site electrical. • Connex set up. • Establishment of traffic routes, parking, equipment laydown yards. • Fencing of areas. • Set up of personnel decontamination trailer. • Set up of sanitary facilities. • Set up of equipment decontamination pads.	Hazardous Chemicals	2	Minimize quantities of hazardous chemicals to only what is needed. No hazardous chemicals are to be brought on site without a Material Safety Data Sheet (MSDS). Maintain MSDSs for hazardous chemicals used on site, including subcontractors, in the job trailer. Store chemicals in approved containers. Properly label all chemical containers in accordance with the OSHA Hazard Communication Standard. Train employees exposed to hazardous chemicals during site safety briefings.
	Biological hazards		Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present.
	Traffic/Vehicles	19,32	Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 15 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Ladders	28	Inspect ladders before use; remove damaged ladders from service. Use wooden or fiberglass ladders around electrical lines. Place ladders on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation, (cont).	Electrical shock or Electrocution	12	Temporary power installed per code by qualified electrician. Three-foot clearance around electrical boxes. Generators must be grounded to a ground rod. GFCIs on all temporary cords. Grounding of electrical circuits. Check electrical cords for broken insulation and potential exposure to water/liquids. Thorough training and demonstration of competence to operate equipment. Three pronged grounded plug or double-insulated tools. Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily. Equipment will be maintained in good operating condition. Remove defective equipment from service. Rollover Protection (ROP) as required. Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation (cont.)	Hand and Power Tools	16	All hand tools and power tools will be in good repair and will be used only for the task for which they were designed. All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed. Surfaces and handles will be kept clean and free of excess oil to prevent slipping. Sharp tools will not be carried in pockets. Wrenches will have a good bite before pressure is applied. Only non-sparking tools will be used in atmospheres that exhibit fire or explosive characteristics. Cheater pipes will not be used. Wear required PPE, including work gloves and safety glasses. Do not operate any controls when hands are wet. Thorough training and demonstration of competence to operate equipment is required. GFCIs must be on all electrical cords. Only three-pronged grounded plug or double-insulated tools can be used. Check electrical cords for broken insulation and potential exposure to water/liquids. Machine guards must be in place. Machine guarding must not be removed for any reason except during necessary maintenance and repair Lockout/tagout prior to work on machinery. Machine guards must be put back in place following maintenance and repair work. Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place. Unplug (turn off power) or disconnect power source when servicing equipment and lock out/tag out. Never exceed maximum pressure ratings (30 psi). Never use compressed air to blow dust off of your body. When using chain saws, have a clear area for work. Notify others of drop zone.
	Slips, trips, falls	21	Locate trailers and storage areas on level ground. Keep the work area free of miscellaneous materials and equipment. Conspicuously mark areas where trip hazards are present. Fill in holes or uneven terrain prior to the start of work. Install and maintain proper stairways on trailers, Connexs, etc. Keep stairs free of ice. Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation (cont.)	Fire/ Explosion	14,15	All electrical wiring, lights and other equipment in hazardous locations will be explosion proof. Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids. Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling). Refuel equipment in designated areas from approved fuel trucks or storage tanks. Stationary fuel storage tanks are to be diked. No matches, lighted or unlit cigarettes, cigars, cigarettes, pipes, or lighters will be taken into the area where work is being done or in any fueling areas. Approved safety cans will be used to store flammable liquids. Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.
	Hot Work	20	Complete Hot Work Permit and have it signed by the SHSO. Inspect area for flammables and combustibles prior to Hot Work. Test for flammable atmospheres; ventilate to less than 10% LEL. Maintain 20-lb. A:B:C fire extinguisher in welding/hotwork area, and a clear 35-foot radius around area free of flammable/combustible materials. Inspect equipment (e.g., cylinders, regulators, hoses, fittings) for leaks, keep fittings/equipment free of grease, oil or lubricant. Torches are to be lit only with friction spark lighters, and are never to be left unattended when lit. Cutting torches will be outfitted with anti-flashback back devices. Don proper PPE during welding (welding hood with shaded lenses, welding respirator; flame-retardant clothing, welding/cutting goggles, gloves, chaps, aprons), and hearing protection during cutting/grinding activities; no disposable protective clothing (e.g., Tyvek®). Position work to avoid contact with hot metal, falling slag and waste material (i.e., start at the top and work to bottom), do not weld or cut on concrete or gravel. All grinders to be equipped with guards and not to exceed specified grinding disc RPM. Inspect and "ring test" grinding wheels prior to use. Secure all cylinders in upright position with valve caps in place and stored in protected area away from heat, combustible and incompatible materials. Station a fire watch. Inspect area immediately after Hot Work, 30 minutes later, and at the end of the shift to verify that there is not smoldering material.
	Pressurized gas cylinders	15	Gas cylinder valves are to be closed when not in use Hoses are to be periodically inspected and replaced when worn or damaged Valve protection caps must always be kept on cylinders when they are being removed, stored, or until ready for use. Secure cylinders with chains or store in cylinder rack.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation (cont.)	Severe weather conditions (e.g., lightning, high winds)		Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Transportation to and Disposal at Mine Site • Truck decontamination • Haul material to mine. • Grading contaminated material at the mine. • Covering contaminated material at the mine.	Burns, lacerations, contusions, eye injury during decontamination of equipment using steam or pressure washers		Wear proper PPE (hardhat, face shields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall) Never point nozzle at personnel. Operate only within prescribed decon area.
	Traffic/Vehicles	19,32	**Implement traffic control plan.** Haul truck drivers must have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area or 20 mph on mine access road. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Inhalation of airborne asbestos fibers and total particulates	8,43	**Implement dust control plan.** Material must be thoroughly wetted prior to transport. Loads must be covered. PPE per **Table B-6**. Truck operators are to remain in truck cab, with window closed during loading and hauling. Personnel are to work or stand on the upwind side of contamination.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Transportation to and Disposal at Mine Site (cont.)	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily. Equipment must be maintained in good operating condition. Remove defective equipment from service. ROP as required. Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests are required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Transportation to and Disposal at Mine Site (cont.)	Slips, trips, falls	21	Locate trailers and storage areas on level ground. Keep the work area free of miscellaneous materials and equipment. Conspicuously mark areas where trip hazards are present. Fill in holes or uneven terrain prior to the start of work. Install and maintain proper stairways on trailers, Connexs, etc. Keep stairs free of ice. Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.
	Severe weather conditions (e.g. lightning, high winds)		Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Surface Excavation • Clearing and grubbing • Remove 6 to 18 inches of soil • Load haul trucks • Hand digging • Soil sampling • Equipment decontamination	Burns, lacerations, contusions, eye injury during decontamination of equipment using steam or pressure washers		Wear proper PPE (hardhat, face shields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall) Never point nozzle at personnel. Operate only within prescribed decon area.
	Traffic/Vehicles	19,32	**Implement traffic control plan.** Haul truck drivers must have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Underground utilities	34	Prior to performing excavation, clear and flag utility locations. Hand-probe locate utilities prior to excavation. Support exposed piping to prevent breakage.
	Inhalation of airborne asbestos fibers and total particulates	8,43	**Implement dust control plan.** Material must be thoroughly wetted prior to transport. Loads must be covered. PPE per **Table B-6**. Truck operators are to remain in truck cab, with window closed during loading and hauling. Personnel are to work or stand on the upwind side of contamination.
	Heat Stress	18	Monitor work site temperatures; Monitor workers for early signs of heat stress, take body temperatures as necessary; Follow heat stress work rest cycles per SMS. Provide drinking water, work breaks, scheduling during cooler parts of day.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Surface Excavation (cont.)	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily. Equipment must be maintained and in good operating condition. Remove defective equipment from service. Rollover Protection (ROP) as required. Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests are required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.
	Slips, trips, falls	21	Locate trailers and storage areas on level ground. Keep the work area free of miscellaneous materials and equipment. Conspicuously mark areas where trip hazards are present. Fill in holes or uneven terrain prior to the start of work. Install and maintain proper stairways on trailers, Connexs, etc. Keep stairs free of ice. Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Surface Excavation (cont.)	Severe weather conditions (e.g. lightning, high winds)		Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Grading and Seeding • Grading	Traffic/Vehicles	19,32	**Implement traffic control plan.** Haul truck drivers must have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Grading and Seeding (cont)	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily. Equipment must be maintained and be in good operating condition. Remove defective equipment from service. ROP as required. Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests are required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.
	Slips, trips, falls	21	Locate trailers and storage areas on level ground. Keep the work area free of miscellaneous materials and equipment. Conspicuously mark areas where trip hazards are present. Fill in holes or uneven terrain prior to the start of work. Install and maintain proper stairways on trailers, Connexs, etc. Keep stairs free of ice. Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.
	Severe weather conditions (e.g. lightning, high winds)		Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization • Movement of material and equipment offsite. • Removal of site electrical. • Connex take down. • Removal of fencing. • Removal of personnel decontamination trailer. • Removal of sanitary facilities. • Take down of equipment decontamination pads	Hazardous Chemicals	2	Remove hazardous chemical to off-site storage for future use. Send MSDSs with chemicals. Verify proper containers and labeling of chemicals prior to removal. Train employees exposed to hazardous chemicals during site safety briefings.
	Biological hazards		Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present.
	Traffic/Vehicles	19,32	Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Ladders	28	Inspect ladders before use; remove damaged ladders from service. Use wooden or fiberglass ladders around electrical lines. Place ladder on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Use four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person can be on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Electrical shock or electrocution	12	Temporary power must be removed per Code by qualified electrician. GFCIs must be on all temporary cords. Check electrical cords for broken insulation and potential exposure to water/liquids. Thorough training and demonstration of competence to operate equipment is required. Three-pronged grounded plug or double-insulated tools must be used. Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered; never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily thereafter. Equipment must be maintained in good operating condition. Remove defective equipment from service. Use ROP as required. Ten feet minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests are required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in the event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Hand and Power Tools	16	All hand tools and power tools will be in good repair and will be used only for the task for which they were designed. All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed. Surfaces and handles will be kept clean and free of excess oil to prevent slipping. Sharp tools will not be carried in pockets. Wrenches will have a good bite before pressure is applied. Only non-sparking tools will be used in atmospheres, which exhibit fire or explosive characteristics. Cheater pipes will not be used. Wear required PPE, including work gloves and safety glasses. Operators will be trained thoroughly and will demonstrate competence to operate equipment. Do not operate any controls when hands are wet. GFCIs must be on all electrical cords. Three-pronged grounded plug or double-insulated tools will be used. Check electrical cords for broken insulation and potential exposure to water/liquids. Machine guards must be in place. Machine guarding must not be removed for any reason except during necessary maintenance and repair. Lockout/tagout must be done prior to work on machinery. Machine guards must be put back in place following maintenance and repair work. Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place. Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout. Never exceed maximum pressure ratings (30 psi). Never use compressed air to blow dust off of your body.
	Slips, trips, falls	21	Locate trailers and storage areas on level ground. Keep the work area free of miscellaneous materials and equipment. Conspicuously mark areas where trip hazards are present. Fill in holes or uneven terrain prior to the start of work. Install and maintain proper stairways on trailers, Connex boxes, etc. Keep stairs free of ice. Practice good housekeeping at all times, always maintain clear view of walking path especially on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Fire/Explosion	14,15	All electrical wiring, lights and other equipment in hazardous locations will be explosion proof. Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids. Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling). Refuel equipment in designated areas from approved fuel trucks or storage tanks. Stationary fuel storage tanks will be diked. No matches, lighted or unlit cigarettes, cigars, pipes, or lighters will be taken into the area where work is being done or in any fueling areas. Approved safety cans will be used to store flammable liquids. Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.
	Hot Work	20	Complete Hot Work Permit and have it signed by the SHSO. Inspect area for flammables and combustibles prior to Hot Work. Test for flammable atmospheres; ventilate to less than 10% LEL. Maintain 20-lb. A:B:C fire extinguisher in welding/hotwork area and a clear 35-foot radius around area free of flammable/combustible materials. Inspect equipment (e.g., cylinders, regulators, hoses, fittings) for leaks, keep fittings/equipment free of grease, oil or lubricant. Torches are to be lit only with friction spark lighters, and are never to be left unattended when lit. Cutting torches will be outfitted with anti-flashback devices. Don proper PPE during welding (welding hood with shaded lenses, welding respirator; flame-retardant clothing, welding/cutting goggles, gloves, chaps, aprons), and hearing protection during cutting/grinding activities; no disposable protective clothing (e.g., Tyvek®). Position work to avoid contact with hot metal, falling slag and waste material (i.e., start at the top and work to bottom), do not weld or cut on concrete or gravel. All grinders are to be equipped with guards and are not to exceed specified grinding disc RPM. Inspect and "ring test" grinding wheels prior to use. Secure all cylinders in upright position with valve caps in place and store in protected area away from heat, combustible and incompatible materials. Station a fire watch. Inspect area immediately after Hot Work, 30 minutes later, and at the end of the shift to verify that there is not smoldering material.
	Pressurized gas cylinders	15	Gas cylinder valves are to be closed when not in use. Hoses are to be periodically inspected and replaced when worn or damaged. Valve protection caps must always be kept on cylinders when they are being removed, stored, or until ready for use. Secure cylinders with chains or store in cylinder rack.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Severe weather conditions (e.g., lightning, high winds)		Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Clearing And Grubbing • Tree cutting and trimming. • Vegetation removal	Injury from chainsaws and brushcutters	16	Ground personnel will be spaced at adequate distances to avoid direct contact. PPE which includes hardhats/faceshields, leather gloves, ballistic nylon chaps/leggings, work boots will be worn. All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed. Surfaces and handles will be kept clean and free of excess oil to prevent slipping. Operators will be trained thoroughly and will demonstrate competence to operate equipment. Kick back guards must be in place.
	Injury from falling trees	None	Properly angle and back cut tree in direction of fall. Personnel to clear area when trees are falling. Use rope to direct falling tree, if necessary.
	Slip/Trip/Fall	21	Keep the work area free of miscellaneous materials and equipment. Conspicuously mark areas where trip hazards are present. Fill in holes or uneven terrain prior to the start of work. Practice good housekeeping at all times, always maintain clear view of walking path. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.
	Cold Stress		Wear warm clothing. Provide heated break areas.
	Lifting Hazards	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	Biological hazards	None	Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Clearing And Grubbing (cont.)	Traffic/Vehicles	19,32	Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered; never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily thereafter. Equipment must be maintained in good operating condition. Remove defective equipment from service. Use ROP as required. Ten feet minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests are required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in the event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.

Table B-2. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Clearing And Grubbing (cont.)	Fire/Explosion	14,15	Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids. Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling). Refuel equipment in designated areas from approved fuel trucks or storage tanks. No matches, lighted or unlit cigarettes, cigars, pipes, or lighters will be taken into the area where work is being done or in any fueling areas. Approved safety cans will be used to store flammable liquids. Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.
	Severe weather conditions (e.g., lightning, high winds)Slips, trips, falls	None	Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds.

Notes:

CDL	=	Commercial driver's license
dbA	=	decibel in A-weighted scale
LEL	=	Lower explosive limit
mph	=	miles per hour
MSDS	=	Material safety data sheet
OSHA	=	Occupational Safety and Health Administration
PPE	=	Personal protective equipment
psi	=	pounds per square inch
ROP	=	Rollover protection
RPM	=	Revolutions per minute
SHSO	=	Site Health and Safety Officer
SMS	=	Safety Management Standard

Table B-3. Potential Chemical Hazards

Chemical Class/Compounds	Uses	Target Organs	Potential Effects	Medical Monitoring
Asbestos	Thermal system insulation; spray-on insulation; transite panels and material; mastic; brake linings; found in vermiculite ore at Libby, Montana mine site.	Lungs Eyes	Dyspnea; restricted pulmonary function Asbestosis; mesothelioma [a] Eye irritation	Occupational/general medical history emphasizing prior exposure to asbestos. Medical examination with focus on lung. Chest x-ray. Pulmonary function test.
Total Particulate	Naturally occurring; associated with soil disturbance.	Eyes Respiratory System	Eye irritation; upper respiratory system irritation; accumulation in lungs.	

[a] Long-term effects generally manifest in 10 to 30 years.

Table B-4. Permissible Inhalation Exposure Levels

Contaminant	OSHA - PEL/STEL	ACGIH – TLV/STEL	NIOSH REL	IDLH
Asbestos	.1 f/cc/ 1f/cc (30 min.)	.1 f/cc A1	.1 f/cc	Ca
Total Particulate	15mg/m^3 total 5 mg/m^3 respirable	10 mg/m^3 total 3 mg/m^3 respirable	NE	NE

Notes:

A1	=	Confirmed human carcinogen
ACGIH	=	American Conference of Governmental Industrial Hygienists
Ca	=	"Ca" designation indicates that NIOSH recommends substance be treated as a potential human carcinogen and exposures reduced to lowest feasible concentration. Non-enforceable standard.
f/cc	=	Fibers per cc
IDLH	=	National Institute for Occupational Safety and Health (NIOSH) "Immediately dangerous to life or health." The exposure concentration represents a condition that poses a threat that is "...likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."
NE	=	No level value established.
PEL (OSHA)	=	Permissible Exposure Limit (29 CFR 1910.1000). Occupational Safety and Health Administration's PELs, expressed as an 8-hour time-weighted average (TWA) concentration.
STEL	=	Short-term exposure limit. OSHA and Cal/OSHA 15-minute TWA concentration that should not be exceeded unless otherwise noted.
TLV	=	Threshold Limit Value®. American Conference of Governmental Industrial Hygienists' TLVs are non-enforceable guidelines based on an 8-hour TWA. "A1" designation indicates substance recognized by ACGIH as a confirmed human carcinogen; "A2" designation indicates substance is a suspected human carcinogen; "A3" designates carcinogenicity in experimental animals; "A4" designates inadequate evidence to classify substance as carcinogenic in humans or animals; "A5" designates non-carcinogenic in humans based on epidemiologic studies.

Sources: NIOSH 1997; ACGIH 1998; 29 CFR 1910.1000 et seq.

Although most spiders are harmless, there are two species that pose potential hazards: the Brown Recluse or violin spider (*Lox osceles reclusa*) and the Black Widow (*Latrodectus mactans*). Field personnel are reminded to exercise extreme caution when lifting logs, sumps, or other covers and when working in dark, dank, enclosed, or heavily covered areas, since spiders are typically found in such microenvironments. Spider bites, although rarely fatal, are often quite painful. Symptoms may include severe pain in the area of the bite, profuse sweating, nausea, abdominal cramps, and difficulty breathing and speaking. First aid procedures for minor insect bites and stings include cold applications; use of soothing lotions (e.g., calamine); and for a bee sting, removal of the venom, stinger, and venom sac. If the bite or sting is suspected to be from a brown recluse or black widow or it produces a severe reaction. Implement the following procedures: 1) calm the victim and keep him/her from moving about, preferably in a prone position; 2) remove the venom with a Sawyer extractor (which should be maintained in the first aid kit); 3) immobilize the bitten extremity and keep it below the heart; 4) if necessary, provide artificial respiration or CPR; 5) get the victim to a hospital immediately.

Ticks are common in wooded areas and may carry transmittable diseases. The most common are Rocky Mountain spotted fever, transmitted by the wood tick, and Lyme disease, carried by the deer tick. Recommendations for avoiding tick bites are to wear clothing to cover the skin and walk in open areas rather than through brush. At the end of the day, check your body for ticks, especially in areas where their movement might be restricted such as the ankles, shins, and waist. If a tick is attached to the skin, gently pull it out with tweezers, being careful not to squeeze the tick's body. Clean the bitten area with antiseptic and watch for any rash. If possible, save the tick in a bottle for later identification.

Poisonous snakes are found in most states. Snakes will usually be found on slopes and rocks exposed to sunlight. When in "snake country", look before you step, step on top of rocks and logs, and look for snakes before stepping over these obstacles. In areas where poisonous snakes may be present, a snakebite kit should be included in the first aid kit. Personnel should remember that snake bites are preventable events. Most individuals who are bitten see the snake but then take actions that put them at risk. Give snakes a wide berth—move away, and the snake will not chase you. Always look before you step over an object, before you turn over a rock or log, and before you place your hand in a crevice. Complete outdoor tasks during daylight hours. Personnel should always wear protective clothing (heavy leather work gloves, thick leather safety boots, long-sleeved shirts) when working in areas with tall grass or in a potential snake habitat.

Snakebites are serious and should be treated as though from a venomous snake, such as a rattlesnake (triangular head; thick body; pits between the eyes and nostrils; generally 4 to 6 feet long; blotched brownish, gray, or red coloration; characteristic rattles). Seek medical attention immediately. Symptoms of venomous poisoning include swelling, pain, and tingling at the bite site; tingling and a metallic taste in the mouth; fever, chills, blurred vision, and muscle tremors. Even if the bite is not from a venomous snake, there is a real possibility of tetanus. The following first aid steps should be followed while awaiting emergency medical services.

- Calm the victim and keep hydrated and comfortable,
- Immobilize the affected area and keep at or below the level of heart,
- Remove rings, watches, and other constrictive items before swelling starts; and
- Gently clean the wound with an antiseptic soap and apply sterile dressing; do not apply ice or attempt to cut the bite site or suck out the venom.

The goal of the treatment should be safe and rapid transport to the emergency room without undue anxiety or activity that may accelerate absorption of the venom. A short walk is acceptable if the patient feels up to it and if no alternative is available. A suction device, such as a Sawyer Extractor, can be used to effectively remove up to 30 % of the venom if applied within three minutes of the bite. An extractor, which is applied without incision, should be maintained in the first aid kit and used when there may be a delay in securing emergency medical treatment.

Other animal hazards that could be encountered include wild and domestic animals, primarily dogs. Most wild animals will be frightened away at sight, but the more domestic they are, the less likely they are to run. Consequently, domestic dogs probably represent the greatest threat. However, beware of skunks and porcupines that do not flee or that raise their tails vertically; you could become a target for noxious excretions or quills. The following guidelines are recommended to avoid animal attacks in the field:

- Avoid surprising animals by making noise and make a wide detour around any animals acting abnormally;
- If dogs are present and pose a potential threat, return to the field trailer and notify the SHSO;
- Carry a walking stick to fend off attacks from domestic dogs; and
- Avoid contact with rodents, because they frequently are hosts for Hantavirus and fleas which carry typhus and the plague. Avoid direct contact or inhalation of dust associated with rodent feces. Cleanup will be conducted using a respirator with high-

efficiency particulate air (HEPA) cartridges, gloves, and a Clorox® solution to wet down nesting material that might contain rodent feces or urine. Dispose of fecal material, nesting material, or dead rodents in a sealed bag.

One of the most prevalent hazards to field personnel is sensitivity to poison oak, poison ivy, or poison sumac (members of the Rhus species). These plants are common throughout the U.S. Sensitive individuals should avoid contact and if contact is suspected, promptly wash with soap and water. Wear long sleeves and gloves to help avoid contact. Sensitivity varies considerably, but exposure can result in a debilitating rash if not treated and/or allowed to spread. Exposure to the irritating and sensitizing agent, urushiol, is also possible from the smoke of burning Rhus plants. In addition, many plant leaves, bark, berries, or flowers are toxic if ingested.

As indicated in Table B-2, exposure to chemical hazards will be controlled via the implementation of appropriate administrative and engineering controls (daily safety training, good work practices, general safety rules, dust suppression, cover material), immediately available emergency equipment (first aid, emergency eye wash, fire extinguisher, etc.), and the use of appropriate chemical-resistant clothing and respirators when Action Levels are exceeded. Exposure to contaminants is expected to be limited to intrusive activities when the underlying contaminants could be exposed or contacted. The SHSO will brief all personnel assigned to the work site of the potential hazards. Air monitoring of the work site and breathing zone of potentially exposed workers will be conducted throughout the work shift when intrusive activities are underway.

4.3 Physical Hazards

The Task Hazard Analyses in Table B-2 identify the physical hazards of concern that pose a potential risk to field personnel. The hazards include vehicle traffic, noise, electrical, hand and power tools, fire/explosion, hot work, above and below ground utilities, heavy equipment operation, material handling, extreme weather conditions (heat stress, lightning, high winds, tornadoes), muscle strains, and slip/trip/fall hazards. Exposure to physical hazards, as indicated in Table B-2, will be controlled through the implementation of appropriate administrative and engineering controls (daily safety training, good work practices, general safety rules, traffic and site control), immediately available emergency equipment, and the use of appropriate PPE.

5.0 Personal Protective Equipment and Controls

The following subsections identify the appropriate engineering and administrative control measures and PPE for the KRP's. The PPE and control measures are designed to limit the risk of exposure to known or potential hazards at the work site. Significant variations or modifications to these requirements, or additional PPE/controls required to meet additional or unexpected site- and task-specific hazards, will require revisions and/or addenda to this HSP, approved by the SHSO and Project CIH.

5.1 Engineering/Administrative Control Measures

Field personnel will be reminded during the initial site-specific training, subsequent follow-up training, and daily safety briefings to be aware of potential chemical and physical hazards and to implement the hazard controls specified in the Task Hazard Analyses (Table B-2). Field personnel will immediately inform the SHSO, PjM, or other supervisory personnel of any unsafe conditions or new hazards they may encounter. The SHSO is responsible for ensuring that site control measures (e.g., marking, warning signs, placards, erecting barriers, securing and controlling access) and decontamination procedures are implemented.

All hazardous materials and fuels will be stored in appropriately marked/labeled containers, in accordance with the manufacturer's recommendations, and, as approved by the SHSO, stored in secured areas of the work site or the fire locker. All containers will be regularly checked for leaks, and must be clearly labeled, tagged, marked (e.g., signs, labels, Department of Transportation [DOT] placards, etc.) indicating the name/type of hazardous chemical(s) and the H&S hazards. All MSDSs for hazardous materials used on site will be available at the URS field trailer.

Outdoor field activities will be scheduled for daytime hours. If evening or nighttime work is required, lighting will be arranged so that any single lighting unit failure will not leave an area in total darkness. Activities within work areas require a minimum intensity of 30 footcandles. Areas outside of immediate work areas (exitways, walkways, etc.) may require substantially less illumination, normally about 10 footcandles.

General safety rules, as presented in **Table B-5**, will be in effect at the Libby work sites. These rules are designed to minimize potential exposure to work site hazards.

Table B-5. General Safety Rules

- Personnel and authorized visitors at KRP's will be required to sign in at the on-site trailer. Visitor access within the work site will be limited to areas outside of designated work zones, or EZ and CRZ. Personnel authorized to work in or enter the EZ or CRZ will be required to meet training/medical surveillance requirements, review and fully understand the HSP, and agree (in writing) to comply with its requirements.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited except in designated work site areas.
- PPE will be used at the work site at the protective level specified in the HSP or as required by the SHSO . The SHSO will ensure that personnel are medically qualified and trained in the use of the PPE, and that the PPE is tested/inspected and found to be clean and in good working order.
- Authorized personnel with facial hair (i.e., over one day's growth) will not be allowed in the EZ whenever respiratory protection is required.
- Personnel and authorized visitors will remove and discard all disposable PPE prior to leaving the work site.
- Personnel and authorized visitors in the EZ must go through decontamination, including showers, before leaving the site.
- All personnel will be trained in the site-specific emergency procedures, including the location of emergency equipment, telephone numbers, and hospital route maps.
- Field personnel must use the "buddy system" at all times while working in designated work areas or EZs. If approved by the SHSO, an individual within the EZ may work alone but must be in continuous visual or verbal contact (e.g., cellular phone or two-way radio) with another authorized field team member.
- Equipment will be kept in proper working order and will be kept free of accumulated lubricants, contaminants, or other hazardous or flammable substances.
- Safety briefings will be held daily prior to the beginning of each shift.
- Field activities are to be conducted during daylight hours whenever possible. Any work conducted during evening or nighttime hours will require a minimum light intensity of 30 footcandles.

5.2 Dust Control

Throughout surface excavation and material transport and disposal activities at the KRP's and mine, the exposed subsurface soils and areas of dust generation will be thoroughly wetted at all times to control dust generation. A water truck will be used throughout these activities

supplemented by sprinkler and pressurized hose using river water. Calcium chloride will be sprayed on haul roads. Detailed dust control information can be found in the Dust Control Plan (Appendix D).

5.3 Personal Protective Equipment (SMS 29,42)

The level of PPE required at a work site depends not only on existing conditions and hazards, but also on the specific work tasks to be performed. Per SMS 29, a PPE Hazard Assessment has been conducted for the KRP's project.

To avoid or control exposure to potential chemical and physical hazards, personnel will be provided with, and required to use, PPE that is specific to the individual's work tasks and potential work site hazards. The SHSO and PjM will ensure that the required PPE (e.g., protective footwear; and head, eye, face, hearing, and respiratory protection) is tested, inspected, and maintained in serviceable and sanitary condition during the course of field activities. Any defective PPE will be discarded or returned to the manufacturer.

Asbestos and airborne dust concentrations in open, well-ventilated areas of KRP's work sites where dust suppression is in place, particularly in the breathing space of field personnel, are not expected to exceed PELs (see Table B-4). However, as an initial precaution, personnel involved in excavation and transport will don chemical protective clothing and half-face respirators with HEPA catridges. The SHSO, or designee, will monitor the breathing space of field personnel during surface excavation and contaminated material transportation and disposal (see Section 6.0) to evaluate the need to continue respiratory protection.

Table B-6 lists the required PPE for each of the work tasks at the KRP's. These may be modified by SHSO with concurrence of the Project CIH.

In addition to PPE, the following protective equipment will be on site:

- First aid kits;
- Safety cans;
- Chemical spill kit;
- Lockout/tagout kit;
- GFCIs;

Table B-6. Task-Specific PPE Requirements

Task	PPE
Mobilization and Site Preparation; Demobilization	Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves.
Transportation to and Disposal at Mine Site	Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, nitrile surgical gloves, work gloves, polypropylene coverall, rubber boot covers; half-face air purifying respirators (APR) with HEPA cartridges.
Surface Excavation	Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, nitrile surgical gloves, work gloves, polypropylene coverall, rubber boot covers, half-face air purifying respirators with HEPA cartridges.
Back Fill and Compaction	Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves.
Equipment Decontamination	Rain suit, hardhat, face shield, rubber steel-toe boots, ear plugs, traffic safety vest, nitrile gloves.
Hot Work	Welding hood with shaded lenses, welding respirator; flame-retardant clothing, (gloves, chaps, aprons), and hearing protection. No disposable protective clothing (e.g. Tyvek®).

- Eyewash bottles in every vehicle;
- Fire extinguishers in every vehicle, at fuel areas, and during hot work;
- Tape, barricades, warning signs, and cones; and
- Cellular telephone or other two-way communication system.

Respiratory protection will be selected and maintained in accordance with the URS respiratory protection program (SMS 42) and in conformance with OSHA's revised Respiratory Protection Standard (29 CFR 1910.134). URS's Respirator Standard Operating Procedure (SOP) form will be completed for each job task requiring respirators, prior to task start-up (see SMS 42). Each URS employee will be fit tested for a proper facepiece seal using the quantitative fit test protocol. The employee is then assigned the same NIOSH-approved brand (MSA, North, 3M, etc.), type (half-face), and size respirator for their use. Personnel will be required to perform positive and negative fit checks prior to donning the respirator at the beginning of the work day. The SHSO will instruct personnel in proper maintenance procedures, including daily cleaning, inspection, and replacement of cartridges when breathing resistance is encountered.

If conditions are encountered requiring a further upgrade, personnel would evacuate the work site and field activities would be halted until such time as the PjM and SHSO, in consultation with the Project CIH, establish it is safe to resume work.

6.0 Air Monitoring (SMS 43)

6.1 Background Air Samples

Background air sampling will consist of site perimeter sampling at four specific locations on two separate days (**Appendix A**) performed by TEM (Transmission Electron Microscopy) and work area monitoring by Phase Contrast Microscopy (PCM).

6.2 Daily Air Monitoring

KEH will conduct daily air monitoring during surface excavation, and material disposal to verify that asbestos fibers are not being released. KEH will place portable air sampling pumps along the downwind perimeter of the EZ established for each of these task. KEH will also collect air samples in the clean side of the decontamination trailer. Air samples will be collected according to NIOSH 7400 method and analyzed by PCM.

During surface excavation, contaminated material transport, and disposal at the mine, the SHSO will collect daily personal air samples for asbestos on workers. The SHSO will collect TWA samples from workers on the ground, heavy equipment operators, and haul truck drivers, and 30-minute excursion limit samples from operations most likely to exceed the OSHA 30-minute Excursion Limit.

6.3 Final Clearance Air Monitoring

At the conclusion of the project, KEH will collect asbestos samples at the same locations as its initial background perimeter samples for comparison to the background results.

6.4 Air Monitoring Summary

Table B-7 Air Monitoring Reference Table

Sample	Sample Location	Test Method	Frequency
Background	**Field locate reference Figure B1-1**	TEM	2 day 4 locations
Daily Perimeter	**Same as selected for Background**	PCM	Each day of field activity
Personnel:			
Excavation and transportation	**10% of staff, minimum of 2 personnel in breathing zone**	PCM	Each day of excavation

Table B-7 Air Monitoring Reference Table, continued

Sample	Sample Location	Test Method	Frequency
Work Area Monitoring	TBD Specific for installed facilities, Section 6.2 locations	PCM	Daily during field operations
Final Background	Same locations as Background	TEM	1 day, 7 locations, after all work is completed and accepted

Notes:

ISO =
PCM = Phase Contrast Microscopy
TBD = To be determined
TEM = Transmission Electron Microscopy

7.0 Site Control

7.1 Work Site Access And Security

Access to the work site will be through gates on existing roads with restricted access and egress. All personnel are to check in and sign in with the SHSO before accessing the work site. The access point will be posted with appropriate emergency numbers, OSHA poster, and warning, danger, caution, and notice signs, in accordance with 29 CFR 1910.145. Access to work sites will be limited to authorized personnel. Only visitors who have received prior authorization from the URS PjM will be permitted to enter the work site. The gates will be locked at night.

The SHSO will be responsible for coordinating site access control and security during field activities. Authorized visitors will be advised of the potential hazards at the work site and will not be allowed to enter designated work zones unless they meet all required training/medical qualifications, have reviewed the HSP, and agree to adhere to its requirements. A visitor log will be maintained, and authorized visitors will be required to sign in before entering.

7.2 Work Zones

An Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Support Zone (SZ) will be established for those areas of the KRP's work site with known or suspected contamination (See Work Plan, Figure 2-1). These include surface excavation areas and contaminated material disposal areas.

The EZ represents an area of the work site where there is the greatest likelihood of exposure to physical or chemical hazards, and is generally limited to those areas where active work is being performed and there is a potential exposure to toxic or hazardous chemicals through inhalation, dermal/eye contact, and/or ingestion. The final size and shape of the EZ will be determined by the SHSO based on potential hazards, site-specific conditions, site limitations, and the nature of the work tasks to be performed. The SHSO will mark the EZ with appropriate high visibility fencing and asbestos warning signs during surface excavation and contaminated material disposal tasks.

The CRZ will be established to provide a buffer zone where personnel can complete personal and equipment decontamination. The personnel decontamination trailer and equipment decontamination pad will be located in the CRZ upwind from the EZ boundary.

The SZ will constitute the clean safe area used for work site support, decon trailer, sanitary facilities (portable toilets, potable water, Connex), and administrative activities. The SZ will be located in an area of the work site(s), upwind of the EZ and CRZ.

7.3 Buddy System

Personnel working within the EZ must use the "buddy system" at all times. Individuals within the EZ must be in visual or verbal contact (e.g., cellular phone or two-way radio) with another authorized field team member at the work site. The use of the "buddy system" will ensure field team members have the assistance of a partner able to observe symptoms of chemical exposure, illness, secure emergency assistance, notify management or response agencies in the event of an emergency, and provide other assistance that may be necessary. Enforcement of the buddy system will be the responsibility of the SHSO.

If approved by the SHSO, based on a review of work area conditions and operational activities, verbal or visual contact with another authorized field team member located outside or away from the immediate work site may be sufficient to satisfy the "buddy system" requirement and permit routine activities within the EZ to be conducted by one individual.

7.4 Site Communications Plan

Radios will be with each work crew to communicate with the URS field trailer and each other. Telephones will be available at the URS Export Plant site trailer and downtown office to communicate with agencies and individuals outside of the work site throughout field activities. In addition, the SHSO will establish emergency signals during the initial site safety briefing prior to initial field activities. Examples include:

EMERGENCY, NEED HELP: grasping throat with hand;

LEAVE AREA IMMEDIATELY: grasping other employee's wrist;

OK, I UNDERSTAND: thumbs up;

NO, I DON'T UNDERSTAND: thumbs down.

EMERGENCY, EVACUATE WORK SITE: continuous blast on compressed air horn or alarm; and

ALL CLEAR: two short blasts on air horn or alarm.

8.0 Decontamination

The extent of decontamination will depend primarily on the nature and extent of the contamination at a work site. The SHSO can modify procedures as necessary, thereby adapting them to actual site conditions (e.g., changes in the nature and extent of contamination, PPE level, work tasks, etc.).

8.1 Personnel Decontamination

A decontamination trailer will be provided at the site for personnel decontamination during surface excavation and contaminated material disposal tasks. The trailer will contain a clean area, showers, and dirty area. All personnel will be required to shower before leaving the site. Tyvek® coveralls worn as outer cover will be disposed of after each use.

All disposable PPE and other equipment will be properly disposed of in plastic trash bags. Any reusable PPE (e.g., outer work gloves, hardhats, safety glasses, rubber boot covers, respirators) that has been on contact with hazardous substances will be decontaminated before being reused.

The following doffing and decontamination sequence will be followed, a flow chart of which will be posted in the decontamination trailer for employees to refer to:

1. Exit EZ through the boot wash outside the decontamination trailer;
2. At the boot wash, clean rubber boot covers using a stiff brush and water;
3. Enter the dirty side of the CRZ decontamination trailer;
4. Remove and hang rubber boot covers on rack provided;
5. Remove outer work gloves, hard hat, safety glasses, traffic safety vest, and steel-toed boots, wipe down with a damp cloth, and set aside on clean shelf or bench;
6. Remove Tyvek® protective coveralls using the inside-out method and place in a lined trash can in the dirty area;
7. Wipe down the outside of the respirator and cartridges (if used), KEEP IT ON;
8. Remove inner surgical gloves and dispose of in lined trash can or plastic bag;
9. Wearing respirator enter shower area carrying work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots and place on clean shelf or bench;
10. Shower then remove respirator by loosening straps and gently pulling the respirator over the top of the head leaving cartridges on during the workday but remove cartridges and dispose of in a lined container in the shower area at the end of the shift;

11. Carry respirator, work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots to the clean area;
12. Store work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots in lockers provided in the clean area;
13. Don street clothes;
14. At the end of the shift disassemble, clean, disinfect, and dry respirator in sink provided in clean area, place in clean plastic bag, and store in locker; and
15. Exit the decontamination trailer.

8.2 Equipment Decontamination

Heavy equipment, haul trucks, and other vehicles that have come into contact with potentially asbestos containing soil or vermiculite, will be decontaminated prior to leaving the KRP's. A bermed decontamination pad with a high-pressure washer and splash curtains to contain overspray will be provided in the CRZ at each site and the Mine disposal site. Contaminants and dirt will accumulate within the undercarriage, tracks, sprockets, axles, and tires of equipment and trucks. Consequently, it will be necessary to scrape, broom clean, and pressure wash this equipment before it leaves the CRZ.

Reusable equipment and tools will be cleaned by wash. If reusable sampling equipment is used, it will be decontaminated using a decontamination solution and followed by a series of distilled water rinses.

8.3 Disposition of Project-Derived Wastes

All disposable PPE, equipment, plastic sheeting, and other items will be placed in plastic trash bags for disposal. Spent washwater, rinsewaters, and rinseates will be discharged through a 5.0 micro filter into tanks for subsequent disposal to the ground or in the sanitary sewer. The source will determine the ultimate disposition of these solutions in accordance with state and federal regulatory requirements (Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA]). Decontamination wastewater may be disposed of at the KRP's, Mine site disposal area, or into a sanitary sewer. The Construction Quality Control (CQC) Representative will ensure that wastes are properly containerized, secured, stored, and disposed.

9.0 Emergency Response Procedures (SMS 3, 49)

9.1 Introduction

In the event of any on-site emergencies at the KRP'sf, the URS SHSO will have the responsibility and authority for coordinating emergency response activities until proper authorities arrive and assume control. All URS and subcontractor personnel will follow the HSP emergency procedures .

In the event of an accident or incident, the SHSO will notify the PjM and the Project CIH as soon as possible (see SMS 49). The SHSO will determine the need to evacuate field personnel off site to a safe place of refuge, and notify the appropriate emergency response agencies. Specifically, spills or fires resulting from the mishandling of petroleum products or fuels, and personal injury/illness resulting from exposure to physical hazards are the emergencies most likely to be encountered at the KRP's. The local fire department and ambulance service will be best suited to handle these emergencies and are located within a reasonable distance to ensure adequate response time. The emergency response procedures presented in this section have been prepared to conform to OSHA standards as specified in 29 CFR 1910.138 as permitted by OSHA 29 CFR 1910.120(l)(1)(ii).

9.2 Pre-Emergency Planning

Pre-emergency planning activities associated with the KRP's project activities include the following:

- Meeting with the local emergency services and hospital personnel to ensure that proposed emergency response activities are compatible with existing emergency response procedures.
- Establishing and maintaining information at the URS Export Plant field trailer for easy access in the event of an emergency. This information will include the following, and it will be the responsibility of the SHSO to ensure the information is available.
  - Copies of the HSP,
  - An inventory of chemical substances used on site, with corresponding MSDSs,
  - Emergency contacts (see Table B-8),
  - Site personnel records regarding medical treatment concerns, and
  - Log identifying personnel present on the site each day.

The provisions of the emergency response/contingency plan and emergency response procedures will be included as part of the site-specific training. The response procedures, evacuation routes, types and locations of emergency equipment (fire extinguishers, emergency eye wash/drench shower, first aid kit, etc.) and spill response material (pads, absorbents, tools), emergency alerting/alarm signals, and safe refuge location(s) will be discussed by the SHSO during follow-up or daily safety briefings for specific KRP's work sites.

9.3 Emergency Recognition And Prevention

9.3.1 Recognition

Emergency situations are generally recognizable by visual observation. An injury or illness will be considered an emergency if it requires treatment other than first aid (i.e., requires treatment by a physician or other medical professional). A fire, beyond the incipient (beginning) stage, that cannot be put out with a fire extinguisher will be considered an emergency. A chemical release or spill will be considered an emergency when it can affect unprotected on-site personnel, off-site workers, and the public. The type(s) of materials that could pose a public or environmental hazard if spilled include lubricating oils, hydraulic fluids, fuels, and waste waters.

9.3.2 Prevention

URS will prevent emergencies by observing and complying with the provisions and requirements of the HSP, observing good work practices, proper maintenance of work site(s), inspecting equipment prior to start-up and throughout capping activities, daily safety inspections of the work site and drums/containers, and the use of approved and labeled DOT drums/containers to store fuels or other hazardous materials.

9.4 Safe Distances and Places of Refuge

In the event that the work site must be evacuated, all personnel will immediately stop activities and report to a designated upwind muster point in the SZ. Upon reporting, personnel will remain there until directed otherwise by the SHSO. The SHSO or designee will take roll at this location, using the log, to confirm the location of all field personnel.

9.5 Evacuation Routes and Procedures

An evacuation must be initiated whenever a fire/explosion or significant spill occurs or there is an imminent threat of such an occurrence, or when personnel show signs or symptoms of overexposure to potential site contaminants. In the event of an evacuation, personnel will proceed immediately to the upwind muster point in the SZ, unless doing so would further jeopardize the welfare of workers.

Evacuation procedures will be discussed daily prior to the initiation of any work at the site. Evacuation from the site depends on the location at which work is being performed. In general, the evacuation routes will be based on wind direction, which could change daily. It will be important for personnel to move crosswind until out of the path of smoke or vapors, to not evacuate in the same direction the wind is blowing, and to travel upwind to the predesignated muster point.

9.6 Decontamination Procedures/Emergency Medical Treatment

Decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. It will not be performed if it would further endanger the lives of workers through a delay in obtaining medical treatment, or from the potential hazards due to performing decontamination procedures at or near the site.

9.7 Emergency Alerting and Response Procedures

Because URS and subcontractor field personnel will be working in close proximity to each other, hand signals and voice commands will be sufficient to alert site personnel to an emergency. If necessary, the following hand signal communications will be used during activities at the site:

EMERGENCY, NEED HELP: grasping throat with hand.

LEAVE AREA IMMEDIATELY: grasping other employee's wrist.

OK, I UNDERSTAND: thumbs up.

NO, I DON'T UNDERSTAND: thumbs down.

EMERGENCY, EVACUATE WORK SITE: continuous blast on compressed air horn or alarm.

ALL CLEAR: two short blasts on air horn or alarm.

9.8 Spills, Accidental Releases

9.8.1 Response Procedures

The materials likely to be used or stored at the KRP's in quantities that could present a potential hazard to field personnel or the environment if released or spilled include fuels (gasoline, diesel), lubricating oils, hydraulic fluids, calcium chloride, and decontamination

wastewater. The following spill prevention measures and procedures will be implemented by the SHSO and site personnel in the event of a significant release or spill exceeding 25 gallons:

- Notify the SHSO and PjM immediately;
- Take immediate measures to control and contain the spill within the KRP's boundary, away from storm drains, drainage ditches, and water courses;
- Remove and keep unnecessary personnel away from the spill, and isolate and define the extent of the spill or hazardous area;
- If there are vapors, gases, fumes, particulates, dust, or other airborne hazardous substances present, ensure that personnel remain upwind, and keep them out of low-lying areas where the gases or vapors can concentrate; and
- Prohibit the use of flames, sparks, smoking, or other sources of ignition in the area of the spill, and keep combustibles away from the spilled material.

For small dry spills, the SHSO or designee will shovel the contaminated material into dry containers, cover, and label the container. For small liquid spills, the SHSO or designee will apply absorbent material or pads to the spill and place the absorbent in a labeled container. All reusable tools and equipment used in any cleanup activity must be decontaminated before reuse. Contaminated disposable equipment or materials (sorbents, rags, dirt, etc.) must be discarded in appropriately labeled containers.

The SHSO must file a written report on the Accident/Incident Report form and submit the form to the PjM and Project CIH within 24 hours of the time of a spill. Gasoline or diesel spills greater than 25 gallons from an aboveground storage tank (any amount from an underground storage tank) must be reported to the Montana Department of Environmental Quality (see Table B-8).

9.8.2 Spill Prevention Measures

The SHSO, in concert with subcontractors, will implement or ensure that the following spill prevention measures are implemented to minimize the potential for spills of fuels, fluids, oils, or other hazardous materials:

- All drums/containers brought on site for storing or containing fuels, fluids, oils, or hazardous materials or wastes must meet DOT standards for their intended uses. The SHSO will inspect drums or containers prior to use, and any personnel using or transporting such containers onto the KRP's will be responsible for visually inspecting them prior their use.

- All drums/containers will be properly labeled as to their contents. Unlabeled containers will be assumed to contain hazardous materials, until confirmed otherwise, and will be subject to appropriate handling.
- The SHSO and PjM will work with subcontractors to minimize the number of containers used and transported on site.
- Personnel responsible for drum/container handling activities must be informed of the potential hazards presented by the operations and the importance of spill prevention during site-specific training.
- Damaged or weakened drums/containers that could rupture or leak must be overpacked, or the contents transferred into another DOT-approved or appropriate container.
- Stationary fuel storage tanks are to be diked.
- The SHSO will conduct regular inspections of operational areas to identify existing or potential spill or release conditions and ensure that appropriate corrective actions are implemented.

9.9 Fires

In the event of an explosion, large fire, or small fire that cannot be extinguished by the fire extinguishers available at the KRP's work site, the SHSO will notify the local fire department immediately and evacuate all unnecessary personnel from the work site to a safe upwind refuge area. The SHSO or senior on-site URS field member will work with and advise the fire Incident Commander of the location, nature, and identification of fuels, or hazardous materials stored on site.

For small fires (fires that can be extinguished with a 20-pound ABC fire extinguisher), the SHSO will evacuate all unnecessary personnel from the immediate area threatened by the fire and attempt to extinguish the fire using the on-site fire extinguishers or by smothering the fire. The SHSO will then notify, as needed, local emergency response assistance (fire department, ambulance, emergency medical team).

9.10 Work Site Injury Or Illness

The SHSO has the responsibility and authority to coordinate emergency medical response activities until proper emergency medical services (EMS) arrive at the work site. In the event of a minor injury, routine first aid procedures will be used immediately, particularly if blood is present. Medical follow-up exams may be required, depending on the nature of the injury or exposure. First aid kits will be maintained at KRP's work sites for treating minor injuries. In the event of a serious injury or illness, field personnel will immediately notify the EMS by dialing

911. The SHSO and one other member of the field team will have current certifications in first aid or CPR and will, if necessary, be able to provide emergency care before EMS arrives. Workers with suspected back or neck injuries are not to be moved. If there is evidence of serious trauma or unknown chemical exposure, the employee should be stabilized while awaiting EMS. The SHSO will determine whether there is sufficient contamination to warrant removal of garments and/or spraying the victim with water to remove the contamination.

In the event of respiratory exposure, dermal or eye contact, or ingestion of a potentially toxic substance, the following procedures will be followed.

Respiratory Exposure (Inhalation)—Move to fresh air immediately. Any loss of consciousness or exposure to elevated levels of toxic substances, even if the individual appears to have fully recovered, requires immediate treatment and/or surveillance by a qualified physician.

Dermal Contact—Wash/rinse affected area for at least 15 minutes. An emergency drench system will be available at the decontamination trailer. If clothing is contaminated and the extent of the injuries permit, remove the clothing and flood the skin with potable water. If necessary, the potable water supply provided at the site can also be used to immediately flush skin or eyes. Ensure that the worker is immediately transported to the local hospital

Eye Contact—Flush eye(s) with emergency eyewash bottles in vehicles. Transport to decontamination trailer and flush continuously for 15 minutes using portable emergency eyewash, then transport worker to the local hospital. Follow-up treatment or examination by a qualified physician is required.

Ingestion—Immediately transport to the local hospital. If the victim cannot be immediately transported to the emergency facility, call the EMS at 911. It may also be necessary to call the Regional Poison Control Center for instructions while waiting for EMS.

Emergency telephone numbers are provided in Table B-8.

9.11 PPE and Emergency Equipment

Emergency response equipment and PPE will be maintained at the URS decontamination trailer. The equipment will include at a minimum:

- Portable telephone or appropriate communication network to allow immediate contact with the fire department, ambulance, and URS supervisory personnel;
- Two 20-pound ABC fire extinguishers;
- Spill kit (sorbent materials, pads, booms, pillows and other materials and equipment appropriate to neutralize or contain the types of chemicals/substances present at the work site);
- First aid kit;
- Emergency eye wash/drench station, and/or a potable water source capable of providing sufficient water to flush exposed skin or eye(s) for a period of 15 minutes; and
- Extra sets of PPE consisting of rubber aprons; chemical resistant gloves and coveralls; rubber steel-toed boots, half-face respirator with combination organic vapor/P100 (HEPA) cartridges; safety glasses; hard hat with face shield; and ear plugs.

9.12 Emergency Contacts

Table B-8 provides a list of emergency telephone numbers and contacts. This list will be conspicuously posted in the URS field trailer and at work sites near the communication system, making it available to all field personnel. The list will be updated and revised as necessary to ensure the correct telephone numbers for all appropriate emergency assistance personnel, URS, and local resources are always readily available to field personnel.

9.13 Recordkeeping

In addition to OSHA recordkeeping requirements contained in the Project Safety and Health Manual, URS will maintain a file of H&S-related events occurring at KRP's. Any exposure or potential exposure is to be recorded, as well as accidents or incidents that require the filing of an Accident/Incident Report (e.g., injuries, illnesses, accidental damage to property, or "near miss" occurrences that could have resulted in personal injury). A copy of an Accident/Incident Report form may be found in SMS 49.

URS will maintain a Project Safety and Health Manual for KRP's project activities. The manual will include this HSP, all training logs, medical clearances, respirator fit tests, daily safety logs, monitoring logs, inspections, and accident/incident reports covering the implementation of the HSP, and MSDSs. A seven-day progress report will be submitted and will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work. A Final Project Report will include a summary of safety and health items from the Progress Reports.

Table B-8. Emergency Telephone Numbers

Libby Fire Department	911
Libby Police	911
Libby Ambulance	911
Hospital: St. Johns Lutheran 350 Louisiana Avenue Libby, Montana	(406) 293-7761
Montana DEQ 2209 Phoenix Ave., Helena, Montana	(406) 444-2544

10.0 HSP Approval, Review, and Documentation

URS and subcontractor field personnel will review the HSP during the initial KRP's project briefing. The field team member(s) must sign the HSP Acknowledgment of Understanding form. The forms will be maintained as part of the project H&S file.

The SHSO is responsible for informing all site personnel of any changes to the HSP and describing the specific details of the changes during safety meetings.

Field personnel will be informed in writing of the results of any monitoring or sampling conducted during remedial and other field activities, or any other information indicating possible work site exposure(s). Any data or other documentation indicating possible employee exposure to chemical hazards exceeding PELs will be forwarded to the employee and, at the employee's request, to his/her personal physician.

11.0 References

American Conference of Governmental Industrial Hygienists (ACGIH). 1999TLVs® and BEIs®, Threshold Limit Values for Chemical Substances and Physical Agents. Cincinnati OH. 1999.

National Institute for Occupational Safety and Health (NIOSH). NIOSH Pocket Guide to Chemical Hazards. U.S. Department of Health and Human Services Publication No. 97-140. Cincinnati OH. 1997.

NIOSH, OSHA, U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (EPA). Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. U.S. Department of Health and Human Services (DHHS) Publication 85-115. DHHS Public Health Service, Centers for Disease Control, NIOSH, Washington D.C. 1985.

URS Consultants, Inc. Health and Safety Program and Management System Manual. Sacramento, CA. 1999.

U.S. Army Corps of Engineers (COE). Safety and Health Requirements Manual. EM 385-1-1. Washington D.C. 1996.

U. S. Environmental Protection Agency (EPA). Standard Operating Safety Guides. Emergency Response Division, Environmental Response Branch, Office of Emergency and Remedial Response. Washington D.C. 1988.

ATTACHMENT B1

AIR MONITORING/INDUSTRIAL HYGIENE PROJECT PLAN

1.0 Introduction

The following describes the proposed air monitoring/industrial hygiene strategies to be provided by Koch Environmental Health, Inc. (KEH) for URS in support of the removal of asbestos and vermiculite at KDC Kootenai River Properties #1 and #2 in Libby, Montana. Please note that this sampling plan has been designed to incorporate project-specific changes and/or provide flexibility in altering the plan to safely meet the intent and goals of the project. This plan has been developed by a Certified Industrial Hygienist/Asbestos Project Designer and may be altered in the field based on actual project conditions. Any changes to this plan will be coordinated through URS, will be implemented only after approval by URS Project CIH and the EPA. KEH will support URS in achieving the objective of the project in the most safe and healthful manner possible and in meeting or exceeding OSHA, EPA, and State of Montana requirements for asbestos control. This plan will apply to asbestos removal/decontamination in all work areas at the KRP's and mine, although changes or alterations may be made in some work areas as conditions deem them necessary. Target work areas will include the following:

- Soil excavation area(s) at properties #1 and #2; and
- Mine site.

All work will be conducted under the direct supervision of a staff Certified Industrial Hygienist (CIH) in accordance with applicable project and regulatory requirements with regards to asbestos control. KEH Industrial Hygienists will use the most efficient sampling and analytical methods and will provide those services necessary to meet the safe completion of each project. KEH will conduct all asbestos work using personnel trained and certified in accordance with requirements of the EPA (AHERA) and the State of Montana with respect to Asbestos Professionals.

2.0 Air Monitoring Plan

All air monitoring for this project will be conducted in accordance with the project requirements with the intent of meeting the goals of the project in a safe and healthful manner. The KEH Project Manager will coordinate all sampling activities with the designated URS Representative to ensure that all affected removal areas and appropriate monitoring points (i.e., decon trailer, perimeter, etc.) are monitored by an experienced asbestos professional. All visual inspections and air monitoring will be conducted in accordance with EPA and State of Montana requirements regarding asbestos control. The air sampling plan for this project involves monitoring via either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM) methodologies in multiple areas.

KEH will work within the project requirements to implement a sampling strategy designed to efficiently and economically determine airborne asbestos (fiber) levels in and around each work area in the interest of protecting human health and the environment. PCM air samples will be collected as appropriate utilizing the NIOSH 7400 Method, A Counting Rules. PCM samples will be used as a general means for monitoring airborne fiber levels in and around each work area, although this type of analysis is non-specific for asbestos fibers. PCM monitoring is useful in tracking and determining airborne fiber levels and provides an efficient and economic means to assess airborne fiber concentrations as they related to asbestos removal.

TEM analysis is specific for asbestos fibers and can be used as a tool for determining actual asbestos concentrations in air samples collected. TEM sampling will be used for asbestos determination in airborne samples as necessary and will be used for perimeter background. In some cases, both PCM and TEM samples may be collected simultaneously (i.e. side-by-side) for use in determining effective fiber control strategies.

Four background perimeter air samples will be collected for TEM analysis prior to intrusive work to determine ambient airborne contaminant levels. Perimeter air samples will be collected on two separate days prior to intrusive work at the site at four locations. Perimeter samples will be collected during each day of soil removal operations for PCM analysis at the same locations as background samples. Figure B1-1 shows proposed locations for background and perimeter sampling. A fixed final location will be field established away from obstructions and documented.

Figure B1-1. Proposed Locations for Background and Perimeter Air Monitoring

(Will be added when survey is received)

Analysis of all samples collected will be submitted to the designated URS on-site laboratory (operated by KEH) or shipped off site (RJ Lee) for analysis according to appropriate turnaround times for each type of analysis.

2.1 Sample Collection

Phase Contrast Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm^2. Transmission Electron Microscopy (TEM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm^2. All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos removal is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and types (e.g. PCM, TEM) of samples collected in and around each work area. Any changes to sampling strategies will be coordinated through the designated URS representative and will only be implemented to add value to the generation of data and add efficiency to the air monitoring program.

Depending upon weather conditions, high volume air samples will be collected at flow rates between 2.0 and 10.0 liters per minute (L/m) for PCM and TEM sampling. Low volume pumps for personal samples will be operated at .5 to 2.5 liters per minute. KEH Representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all sampling periods. KEH will maintain a primary flow calibration instrument on-site at all times during this project and will maintain calibration records on site for review by the URS representative.

Portions of samples not destroyed during analysis will be archived.

2.2 Laboratory Analysis

To ensure state-of-the-art quality control, all analysis will be conducted by independent laboratories provided by URS that are accredited by the American Industrial Hygiene Association (AIHA) and/or the National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of PCM and TEM air samples. Selected samples will be analyzed on-site by an independent laboratory to ensure rapid transmission of data and assist in developing dynamic

asbestos control strategies. Results of all air samples will be posted in or around the affected work area within 24 hours for (PCM) or upon laboratory forwarding of analysis for TEM.

2.3 CIH Review and Sign-Off

Upon completion of each project, a final technical report will be generated by KEH that describes the project activities, air sample results, and visual inspection data. All standard operating procedures and technical reports have been developed by KEH's staff CIH to ensure that our clients are provided reliable technical data. All projects conducted by KEH for URS will be performed under the supervision of a staff CIH. All technical reports for this projects will be developed, reviewed, and signed by a staff CIH.

2.4 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. Our inventory for air sampling consists of up to 40 high volume, adjustable sampling pumps, up to 30 low-volume battery-operated pumps, and all of the necessary support equipment, including calibrated rotameters, primary flow standards, and associated electrical and personal protective equipment. All of our rotameters are calibrated against a primary flow calibration standard (Dry Cal DC Lite) quarterly. An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e. battery) pumps will be maintained on site to support air monitoring requirements for the project.

KEH utilizes Thomas brand electric high-volume sampling pumps capable of running at 1-15 liters per minute continuously for multiple shifts. KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pump and battery packs will be maintained on site to adequately monitor the project on a daily basis and allow for charge-discharge cycles, pump failures, and backup capabilities. The KEH inventory also holds other types of IH sampling equipment including respirable particulate cyclones, real-time sampling instrumentation, exposure monitoring apparatus, and various types of media for air sampling a variety of contaminants. Our excellent working relationships with nationwide safety suppliers and laboratories enable us to secure other types of sampling equipment as necessary to conduct any type of industrial hygiene evaluation.

Tabbed Page:

C

APPENDIX C

TRAFFIC CONTROL PLAN

1.0 Introduction

This traffic control plan describes procedures that will be followed during the transportation of excavated materials from the KDC Kootenai River Properties #1 and #2 to the designated mine disposal site at the former vermiculite mountain mine. This plan has been established in accordance with appropriate local regulations and requirements and will be maintained throughout the duration of remedial activities. Traffic control is necessary on the roadway between the excavation sites and disposal site due to potential interactions with other vehicles and restricted access on portions of the roadway.

To implement this plan, URS will employ two "flaggers". This plan describes the responsibilities of each of these individuals and their part in maintaining a safe, efficient transportation of waste material from each site to deposition at the disposal site.

WR Grace anticipates that up to 35,000 cubic yards of soil may be removed from the two sites. This estimate is based upon spot surface soil excavation over 8.5 acres which will be removed across the properties. URS will employ six to eight trucks for hauling the material to the mine disposal site. Each truck has a capacity of 20 cubic yards. Truck turnaround time will be based upon the site. Site #1 on the east river side, south of the nursery being adjacent to Rainy Creek Road, thus allowing for a faster cycle time. Site #2 on the west side of the River has an 18 mile longer route to access a convenient crossing off Old Champion Haul Road to Highway 37.

Mobilization and demobilization activities involve limited staggered vehicular traffic, and will be performed under present Department of Transportation (DOT) regulations and local traffic control measures.

It is important to note that the traffic control procedures and routes described herein assume disposal at the mine site and at a specific location, adjacent to the "Glory Hole" for soils. Therefore, this Traffic Control Plan may be amended pending a final decision regarding the soil disposal and volumes. Any plan modification will be submitted for approval by the EPA.

2.0 KDC Kootenai River Properties Sites #1 and #2

2.1 Site #1

Site #1 is located just south of the Parker Nursery Property in Libby, Montana and is bounded on the north by the Parker Property; on the east by Highway 37; and on the west by the Kootenai River. The site has direct access to Highway 37 North, just south of Rainy Creek Road. See Figure C-1 for a detailed site layout.

Access to the Site #1 will be restricted during the soil removal action (see Work Plan for details). Designated clean parking areas will be maintained for personnel and authorized visitor vehicles on the north side of the site near the property entrance gate (to be installed) for the access and egress roads to Highway 37. Designated equipment parking areas will be maintained within the restricted zone. All vehicles leaving the restricted zone will be decontaminated before leaving the site (see Work Plan for details).

Vehicles utilized for waste transportation will enter the site from the north entrance. Prior to entering the site at the start of a work shift, each driver will be outfitted in a Tyvek® suit and fitted with a half-face respirator. This PPE will be worn during all driving operations within the exclusion zone and at the mine as required by the EPA. Also, each truck tailgate will be sealed with poly before crossing into the restricted zone and receiving waste product for transportation to the Disposal Site. All waste transportation vehicles will have their loads covered and will be decontaminated at the wash pad by washing wheels and undercarriage, as needed. The vehicles will be inspected to prevent tracking of material onto the highway and roads. The wash pad will be located near the north exit before Highway 37 prior to leaving Site #1. As a result of potential traffic congestion, limited space, and roadway conditions, vehicle traffic speeds will not exceed five miles per hour (mph) in this area.

2.2 Site #2

Site #2 is on the west side of the Kootenai river across from the Parker property and consists of lots 1, 2 and 3 within the KDC development areas. Access is from the south utilizing Old Champion Haul Road. This road connects to Highway 37—nine miles south of the property.

Access to the Site #2 will be restricted during the soil removal action (see Work Plan for details). Designated clean parking areas will be maintained for personnel and authorized visitor vehicles on the south side of the site near the property entrance gate (to be installed) for the access and egress roads to Old Champion Haul Road. Designated equipment parking areas will

Figure C-1. Site Layout

(Requires survey due 10/02/00 to complete and insert.)

be maintained within the restricted zone. All vehicles leaving the restricted zone will be decontaminated before leaving the site (see Work Plan for details).

Vehicles utilized for waste transportation will enter the site from the south entrance. Prior to entering the site at the start of a work shift, each driver will be outfitted in a Tyvek® suit and fitted with a half-face respirator. This PPE will be worn during all driving operations within the exclusion zone and at the mine as required by the EPA. Also, each truck tailgate will be sealed with poly before crossing into the restricted zone and receiving waste product for transportation to the Disposal Site. All waste transportation vehicles will have their loads covered and will be decontaminated at the wash pad by washing wheels and undercarriage, as needed. The vehicles will be inspected to prevent tracking of material onto the highway and roads. The wash pad will be located near the south exit before Old Champion Haul Road prior to leaving the Site #2. As a result of potential traffic congestion, limited space, and roadway conditions, vehicle traffic speeds will not exceed five miles per hour (mph) in this area.

3.0 Transportation Route for KCD Kootenai River Sites #1 and #2

3.1 Route from Site #1

Waste transportation vehicles will exit Site #2, turn left, and travel north on Highway 37 to Rainy Creek Road approximately one tenth of a mile. The first flagger, Flagger #1, will be located at the site entrance and will coordinate inbound and outbound waste transportation vehicle traffic so that impacts on the local community and potential conflicts with Highway 37 traffic may be minimized.

Flagger #1 will contact the waste transportation vehicle ready for travel to the Disposal Site, holding local traffic on Highway 37 until that vehicle has proceeded north. Vehicles returning from the Disposal Site will contact Flagger #1 via radio to hold at Rainy Creek Road until the route is clear. Waste transportation vehicles will travel on Rainy Creek Road, a gravel road that leads to the mine disposal site (Figure C-2). It is anticipated that there will be no additional traffic control requirements along Highway 37 to and along Rainy Creek Road until vehicles reach Flagger #2's position (Figure C-3). Flagger #2 controls ingress and egress traffic within the former vermiculite mountain mine site.

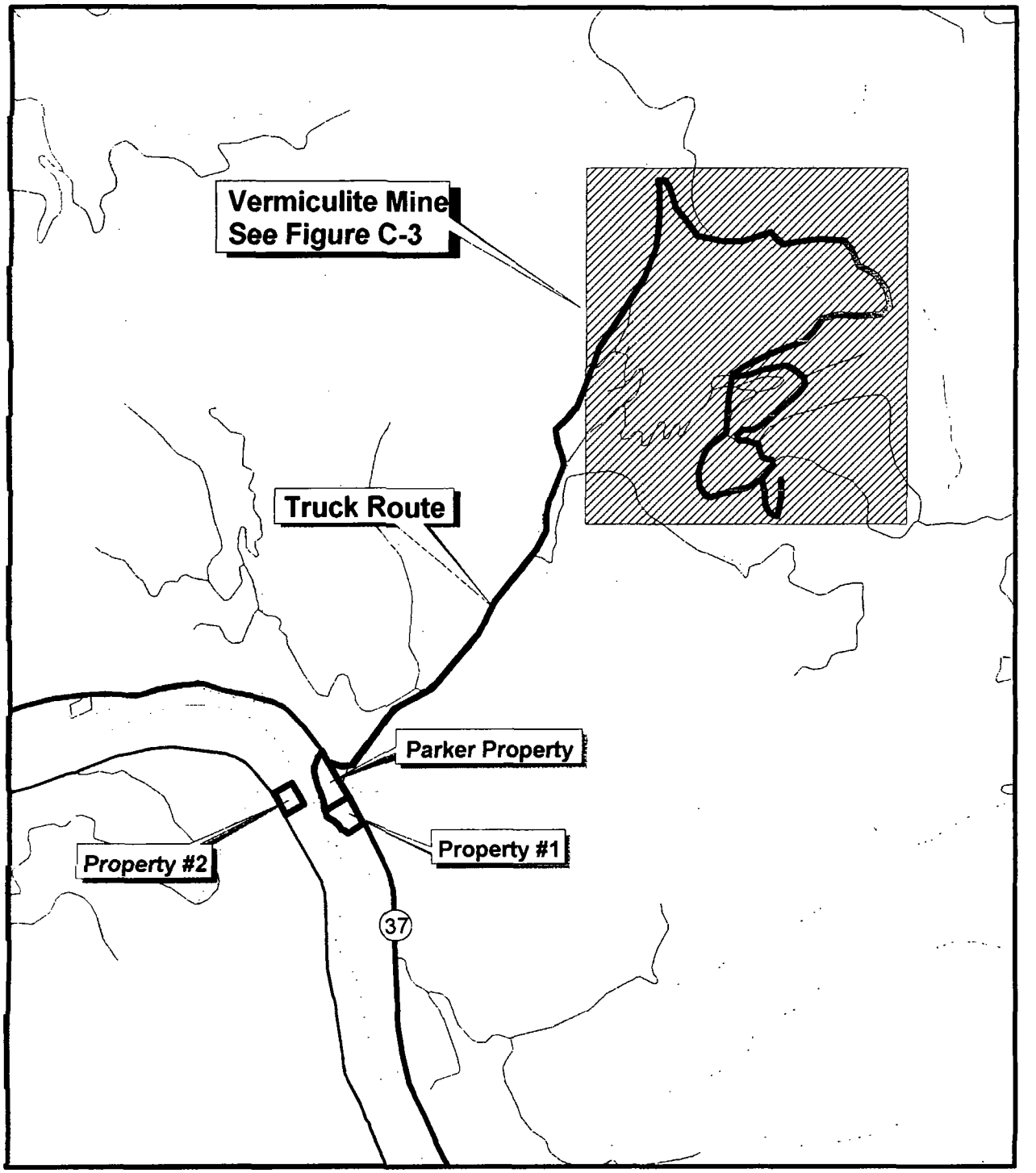

Figure C-2. Route from Sites #1 and #2 to Mine Site

KOOTENAI RIVER PROPERTIES
LIBBY, MONTANA

FILE NAME	DATE	DR. BY
libby.apr	19 Oct. 2000	JLC

Figure C-3. Traffic Route at Mine Site

3.2 Route from Site #2

Waste transportation vehicles will exit Site #2, and proceed south nine miles on Old Champion Haul Road to the intersection with Highway 37. At the intersection., turn left, and travel north on Highway 37 to Rainy Creek Road approximately nine miles. The first flagger, Flagger #1, will be located at the intersection on Highway 37 and will coordinate inbound and outbound waste transportation vehicle traffic so that impacts on the local community and potential conflicts with Highway 37 traffic may be minimized.

Flagger #1 will contact the waste transportation vehicle ready for travel to the Disposal Site, holding local traffic on Highway 37 until that vehicle has proceeded north. Vehicles returning from the Disposal Site will contact Flagger #1 via radio to be sure no traffic is exiting Old Champion Haul Road before turning in. Waste transportation vehicles will travel north approximately nine miles to Rainy Creek Road, and then on Rainy Creek Road, a gravel road that leads to the mine disposal site (Figure C-2). It is anticipated that there will be no additional traffic control requirements along Highway 37 to and along Rainy Creek Road until vehicles reach Flagger #2's position (Figure C-3). Flagger #2 controls ingress and egress traffic within the former vermiculite mountain mine site.

4.0 Disposal Site

The Disposal Site presently being considered for use is located within the former vermiculite mountain mine adjacent to the "Glory Hole". Access to the mine is via Highway 37 and Rainy Creek Road, which narrows to a single-lane, gravel access road (Figure C-3).

Primary Disposal Site traffic ingress and egress control activities will be associated with the single-lane, gravel access road leading to the mine Disposal Site. Access to the Disposal Site will be restricted to personnel associated with operations at the Disposal Site. The roadway from the mining gate to the Disposal Site is a single-lane gravel road with grades as steep as five percent. In addition, the road has several blind curves with steep drop-offs. As a result of these potential dangers, the road between the mining gate and the Disposal Site will be utilized as a single/reversible lane, controlled through radio contact between Flagger #2 and the truck driver.

Flagger #2 will be located just west of the mining gate, as illustrated on Figure C-3. This flagger will control inbound waste transportation vehicles prior to the road narrowing to a single lane and will halt inbound traffic while traffic is exiting the Disposal Site. This location is

important for regulating all traffic, which may include Disposal Site workers, truck soil and waste transportation vehicles, and EPA vehicles. Accurate accounting of the number of vehicles on the single-lane road between Flagger #2 and the disposal area will allow for tracking of all vehicle locations and eliminate potential collision dangers.

Any inbound waste transportation vehicle will be given priority whenever possible. Outbound traffic from the Disposal Site will be decontaminated prior to leaving the site (see Work Plan for details). Outbound traffic will be held until coordination between Flagger #2 and the driver confirms "IN" or "OUT" one-way passage.

5.0 General Guidelines

To maintain safe transportation practices, a number of general guidelines have been established and will be shared with all participants involved in waste transportation activities. All personnel will comply with these guidelines. The following is a discussion of speeds not to be exceeded by waste transportation vehicle personnel, barricades and signs, radio communication practices, and vehicle maintenance. This plan has been in effect for the Export Plant.

6.1 Speed Limits

- Excavation Sites #1 and #2: less than 5 mph;
- Highway 37 from the sites up to Rainy Creek Road: as posted (not to exceed 45 mph or 60 mph);
- Old Champion Haul Road: 40 mph;
- Rainy Creek Road (two-lane gravel): 20 mph. Rainy Creek is to be restricted from other traffic in the area of the mine during operating hours per agreement with the Forest Service;
- Mining Gate to Disposal Site (single-lane gravel): 15 mph (use lower gears - steep down grades); and
- Disposal Site: less than 5 mph.

6.2 Barricades, Signs, Protective Equipment

Barricades and signs will be placed at the Highway 37 and Rainy Creek Road intersection and along side Rainy Creek Road at intersecting logging roads to inform others of additional

truck traffic and to direct the waste transportation vehicles to the second mining gate to the disposal site. Flaggers will be equipped with a hard hat, orange traffic vest, Stop/Slow sign, radio, and clipboard for tracking inbound and outbound traffic. A DOT required sign will be appropriately posted on Highway 37 feet prior to flaggers warning of temporary traffic conditions ahead.

6.3 Problems

The flaggers will use radios to maintain constant communications with each other and the waste transportation vehicles. All vehicles will be equipped with radios in good working order so that logistical information and any problems encountered on the road may be reported immediately. Any problems encountered will be reported to the Site Supervisor.

6.4 Fuel

Waste transportation vehicles will fuel at local service stations.

Additional traffic control procedures will be documented in writing by using Daily Traffic Control Reports, Table C-1 and addendum to this Traffic Control Plan, as required.

Table C-1. Daily Traffic Control Report – Blank

URS
Radian

Daily Traffic Control Report

Client:
Site Address:
City, State, Zip:
Scope of Work:
Weather: _____ **Temperature:** _____ **Wind Speed:** _____

Date:
Project #:
Client Contact:
Prepared by: _____

When Red "Danger" Trucks Are Proceeding Helps Single Lane Status

Up	
Down	

Truck Number	Shipping Site _____			Flagger #1 (F1)	Flagger #2 (F2)		Flagger #2 (F2)
	Bed Lined	Loaded & Tarped	Decon'ed	Time Cleared (Call F2)	Time Arrived	Released Clear	Truck Cleared Disposal Site (Call F1)
Truck#-Yrd-Mat						↑	↑

Truck Number	Shipping Site ________________			Flagger #1 (F1)	Flagger #2 (F2)		Flagger #2 (F2)
	Bed Lined	Loaded & Tarped	Decon'ed	Time Cleared (Call F2)	Time Arrived	Released Clear	Truck Cleared Disposal Site (Call F1)

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D

APPENDIX D

DUST CONTROL PLAN

1.0 Introduction

The URS Dust Control Plan provides fugitive dust control measures to be utilized during work activities associated with removal of asbestos impacted soils and vermiculite at the KDC Kootenai River Properties #1 and #2 in Libby, Montana. URS will maintain the project site so as to mitigate visible dust during URS activities, in compliance with this Dust Control Plan, and will comply with contractor requirements.

2.0 Site Locations

The project sites are two properties adjacent to the Kootenai River with approximately 8.5 impacted acres in Libby, Montana (Figure 1-2). The work sites encompass the areas to be excavated, support areas, transportation routes to the former vermiculite mine disposal area, and related mine area presently identified for disposal.

3.0 General Requirements

The general requirements of this plan ensure that adequate resources will be available to control dust 7 days per week and 24 hours per day. These requirements also detail the means and methods that URS will use to implement dust control measures during soil removal activities. URS plans to control dust during weekends, holidays, and other hours when work is not in process relying heavily on Best Management Practices, as follows. URS plans to haul excavated soils the landfill on the same day it is removed. If a pile remains after normal working hours, the pile and surrounding areas will be moistened with water and covered before personnel leave the site. Pile covers will be poly or tarp and secured by sandbags, rope and stakes as necessary to prevent blowing. Water will not be allowed to run off from the staging area.

To ensure that URS has total control of the resources needed to respond to an unforeseen off-hour dust problem, we will have a water truck on call at all times. The Construction Manager (CM) will be responsible for dust control during times when work is not in progress. If the CM is not available, he or she will assign responsibility to the Project Manager or another designated URS designated party. URS will have at least two qualified employees on call to operate trucks and hoses during off-hours. Attachment D-2 contains the names and contact numbers of URS management personnel for off-hours response.

URS dust control measures are designed to control visible dust. The CM will be responsible for daily weather tracking to prepare for high wind and/or dusting conditions. Weather information will be recorded on the URS Daily Control Report. URS will monitor weather conditions prior to leaving the site and during off-hours to get an indication of whether dust controls may be necessary. These administrative, engineering, and physical controls will include but will not be limited to:

- Wetting surfaces with water;
- Applying dust suppressants, where applicable (calcium chloride on Rainy Creek Road);
- Minimizing soil, road, and surface disturbances;
- Minimizing dusting exposure periods and wind erosion before dust-cleanup measures are applied;
- Curtailing work activities during high wind conditions (to be field determined and set based upon location;
- Minimizing drop heights when dumping or transferring material;
- Controlling vehicle speeds on unpaved surfaces and haul roads;
- Restricting traffic to designated roads and corridors;
- Selecting the appropriate equipment; and
- Suspending loading or removal operations if an adequate water supply is not available.

4.0 Dust Control Measures

As specified in URS Dust Control Plan, Section 3.0 General Requirements, URS will control all visible dust. This includes dust control during excavation activities, loading materials, and hauling materials to the appropriate landfill area. URS proposes to use water to suppress visible dust during operations. Water will be URS's main resource for dust control.

URS will keep all work areas, including haul roads and access points within each site, and the disposal area at the mine, thoroughly wet during our work activities. This will be accomplished using water trucks and/or water pumped from the Kootenai River or lower pond. Each water truck will be equipped with spray bars for wetting haul and access roads. Each water truck will be fitted with a power train operation (PTO) pump capable of supplying water in a quantity and at a pressure sufficient to efficiently control dust in remote areas where water truck

spray bars may not be used. Excess water use will be avoided to minimize runoff and erosion of adjacent soils.

4.1 Loading and Transportation

During loading, unloading, and soil transfer operations, URS will minimize material drop heights to reduce emissions of visible dust. Trucks loaded with soils will be covered before the vehicles leave the sites. During debris loading, additional water will be sprayed to control fugitive dust emissions.

4.2 Dust Suppressants

Water will be the primary dust control measure used. However, other approved dust suppressants may be required during periods when the application of water is inadequate. Calcium chloride solution will be applied to Rainy Creek Road prior to initiation of disposal truck activities and reapplied to areas as necessary. See Section 8.0 for dust control materials.

4.3 Area Controls

URS will excavate soils and load directly into the truck when possible, minimizing double handling and dust generation.

5.0 Dust Control Equipment

URS will utilize the following equipment for dust control:

- Water truck(s) equipped with spray bars and pressurized hoses;
- Fire hoses;
- Valves; and
- Pumps for remote area water with withdrawal from the Kootenai River.

6.0 Working Hours Per Day

URS anticipated work schedule for the duration of the project is Monday through Saturday, 10 working hours per day.

7.0 Freeze Protection

As the work is presently scheduled, temperatures low enough to freeze water tanks, water trucks, or hoses and fittings are likely in the Libby, Montana, area. To ensure that tanks, hoses, and fittings do not freeze, water use will be supervised so that, if freezing is anticipated, the elevated tank and the water trucks will be emptied each night. Hoses, valves, and pumps will also be drained and left empty and open.

8.0 Materials for Dust Control

The primary material used for dust control will be non-potable water (provided by the City, under use permits, Kootenai River and lower pond). In the event that water alone is not sufficient, calcium chloride will be added to the water trucks per the manufacturers' recommendations. Attachment D-1 contains information and a material safety data sheet MSDS on our proposed dust suppressant. Calcium chloride application will be used on the mine site road as necessary.

9.0 Application

URS will stabilize dust and control visible dust emissions using the following methods:

- Suppressing dust before, during, and after soil excavation;
- Suppressing dust during loading operations;
- Covering loads between the sites and the disposal areas;
- Applying water or other approved dust control measures to the work areas and roads;
- Controlling material drop heights during loading, unloading and material transfer operations;
- Minimizing and controlling material handling operations;
- Applying other approved methods for controlling dust during specific activities; and
- Avoiding saturation of the surrounding soils whenever possible to reduce the potential for erosion.

10.0 Field Quality Control

URS will inspect work areas continually to assess the need for dust control measures. Dust control activities and inspections will be documented and reported on URS Quality Control Reports.

11.0 High Wind Conditions

During high wind conditions, resources will be concentrated on problem dust areas. If high winds are expected, approved dust suppressants may be applied. Work performed in high winds will comply with the HSP and Air Monitoring Plan. If visible dust is observed and suppression measures are unable to eliminate it, work operations will cease until high winds subside.

Attachment D-1

Dust Suppressant Information

OCCIDENTAL CHEMICAL -- CALCIUM CHLORIDE (ALL GRADES)
MATERIAL SAFETY DATA SHEET
NSN: 681000N060056
Manufacturer's CAGE: 0AH54
Part No. Indicator: A
Part Number/Trade Name: CALCIUM CHLORIDE (ALL GRADES)

General Information

Company's Name: OCCIDENTAL CHEMICAL CORP
Company's P. O. Box: 809050
Company's City: DALLAS
Company's State: TX
Company's Country: US
Company's Zip Code: 75380
Company's Emerg Ph #: 800-733-3665
Company's Info Ph #: 214-404-3523
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 17JUN92
Safety Data Review Date: 23MAY95
MSDS Serial Number: BXTVS

Ingredients/Identity Information

Proprietary: NO
Ingredient: CALCIUM CHLORIDE; (CALCIUM DICHLORIDE)
Ingredient Sequence Number: 01
Percent: 80-40
NIOSH (RTECS) Number: EV9800000
CAS Number: 10043-52-4
OSHA PEL: N/K (FP N)
ACGIH TLV: N/K (FP N)

Proprietary: NO
Ingredient: WATER
Ingredient Sequence Number: 02
Percent: 60-80
NIOSH (RTECS) Number: ZC0110000
CAS Number: 7732-18-5
OSHA PEL: N/K (FP N)
ACGIH TLV: N/K (FP N)

Physical/Chemical Characteristics

Appearance And Odor: CLEAR TO AMBER SOLUTION
Boiling Point: 240F,116C
Vapor Pressure (MM Hg/70 F): 9 @ 20C
Vapor Density (Air=1): N/A
Specific Gravity: (SUP DAT)
Solubility In Water: INFINITE
pH: 8-9

Fire and Explosion Hazard Data

Flash Point: N/A
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Extinguishing Media: USE MEDIA SUITABLE FOR SURROUNDING FIRE (FP N).
Special Fire Fighting Proc: WEAR NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N).

Unusual Fire And Expl Hazrds: NONE KNOWN.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): UNDER NORMAL CONDITIONS, THE MATERIAL IS STABLE.
Materials To Avoid: NONE KNOWN.
Hazardous Decomp Products: NONE.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT.

Health Hazard Data

LD50-LC50 Mixture: LD50 (ORAL RAT): 1000 MG/KG.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE: INHALATION: INHALATION OF MIST MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT. SKIN: EXPOSURE TO MIST OR LIQUID MAY CAUSE IRRITATION. EYES: MIST AND LIQUID MAY CAUSE IRRITATION. INGESTION: INGESTION MAY CAUSE NAUSEA, VOMITING AND ABDOMINAL DISCOMFORT. CHRONIC: NO KNOWN CHRONIC EFFECTS.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT.
Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: EYES: IMMED FLUSH W/DIRECTED STREAM OF WATER FOR AT LEAST 15 MIN, FORCIBLY HOLDING EYELIDS APART TO ENSURE COMPLETE IRRIGATION OF ALL EYE & LID TISS. GET MED ATTN. SKIN: WASH THORO W/SOAP & WATER. WASH CLTHG BEFORE REUSE. IF IRRIT OCCURS, GET MED ATTN! INHAL: IF SYMP DEVELOP, GET PERS OUT OF CONTAM AREA TO FRESH AIR. INGEST: NEVER GIVE ANYTHING BY MOUTH TO UNCON PERS. HAVE PATIENT DRINK (SUP DAT)

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: WEAR PROTECTIVE EQUIPMENT. CONTAIN SPILL BY DIKE TO PREVENT FLOW TO SEWERS/STREAMS. PUMP INTO MARKED CONTAINERS FOR RECLAMATION/DISPOSAL. SOAK UP SPILLS W/ABSORBENT MATERIAL IF POSSIBLE, CLEAN UP SPILL AREA W/OUT WATER & THEN FLUSH W/PLENTY OF WATER.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: SUBMIT TO AN APPROVED CHEMICAL DISPOSAL SERVICE FOR DISPOSAL IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. DO NOT FLUSH LARGE AMOUNTS TO SEWER!
Precautions-Handling/Storing: STORE IN A CLEAN, DRY AREA AND KEEP CONTAINERS OR TANKS COVERED TO PREVENT CONTAMINATION FROM FOREIGN MATERIAL.
Other Precautions: NONE SPECIFIED BY MANUFACTURER.

Control Measures

Respiratory Protection: PROVIDE MIST PROTECTION WHERE APPLICABLE. USE NIOSH/MSHA APPROVED RESPIRATORS.
Ventilation: VENTILATION IS NOT USUALLY REQUIRED FOR CALCIUM CHLORIDE SOLUTIONS. AVOID CREATION OF MIST OR SPRAY. IF (SUP DAT)
Protective Gloves: NEOPRENE/VINYL, IMPERVIOUS RUBBER.
Eye Protection: ANSI APPRVD CHEM WORKERS GOGGS (FP N).
Other Protective Equipment: EYEWASH AND EMERGENCY SHOWER SHOULD BE IN CLOSE PROXIMITY.
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
Suppl. Safety & Health Data: SPEC GRAV: 1.24-1.34 (H*2O=1). FIRST AID PROC: SEVERAL GLASSES OF WATER, THEN INDUCE VOMIT BY HAVING PATIENT TICKLE

PRESENT, PROVIDE LOCAL EXHAUST SYSTEMS AND WEAR NIOSH/MSHA APPROVED RESPIRATORY PROTECTION IF AIRBORNE EXPOSURE IS POSSIBLE.

Transportation Data

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 23MAY95
Label Date: 23MAY95
Label Status: G
Common Name: CALCIUM CHLORIDE (ALL GRADES)
Chronic Hazard: NO
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE: INHALATION: INHALATION OF MIST MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT. SKIN: EXPOSURE TO MIST OR LIQUID MAY CAUSE IRRITATION. EYES: MIST AND LIQUID MAY CAUSE IRRITATION. INGESTION: INGESTION MAY CAUSE NAUSEA, VOMITING AND ABDOMINAL DISCOMFORT. CHRONIC: NO KNOWN CHRONIC EFFECTS.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: OCCIDENTAL CHEMICAL CORP
Label P.O. Box: 809050
Label City: DALLAS
Label State: TX
Label Zip Code: 75380
Label Country: US
Label Emergency Number: 800-733-3665

Attachment D-2

Management Personnel On Call

Management Personnel On Call

Local Office:

317 Mineral Avenue
Libby, Montana 59923
406-293-3964
406-293-3749 fax

Export Site Trailer:

(to be determined)

Personnel:

Name	Position	Phone Numbers
Tim Gish	Removal Coordinator	406-293-3964 day 406-293-4178 evenings
Peter Pendrak	QC/Document Control	406-293-3964 day 406-293-7711 evenings
Dave Sinkbeil	Construction Manager	406-439-7032 cell TBD, evenings
Jim Stout	Project Manager	406-293-3964 days 303-882-5271 cell 406-293-7711 evenings
Mark Emter	KEH	406-293-3964 days 303-564-6683 cell 406-293-6201 evenings
Patrick McGurren	KEH	406-293-3964 days 406-293-6201 evenings

Note: This list will be amended, as needed, and will be posted at the local office and at the site trailers.

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E

APPENDIX E

EROSION CONTROL PLAN

1.0 Erosion Control Plan

Erosion control measures described in this plan pertain to temporary erosion control and sediment control measures during activities associated with the removal of asbestos impacted soils and vermiculite at the KDC Kootenai River Properties #1 and #2 in Libby, Montana. These measures (including but not limited to the installation of sediment barriers [such as silt fence or hay bales], ditches, and drainage controls) will ensure that erosion of soils will be minimized, silting or muddying of drainage channels, the Kootenai River or Rainy Creek will be minimized, and impact to adjacent lands will be minimal. URS will install all major temporary erosion and sediment control features prior to the start of any land disturbances (Figure E-1). The enclosed Erosion Control Plan Figures (E-2, E-3, and E-4) will be used as a guide to installing erosion and sediment control measures. EPA and Soil Conservation Service guidelines were reviewed for general erosion control information. The following sections discuss erosion and sediment control best management practices that will be used during the excavation activities.

1.1 Detailed Plan

Site #1 (south of the Parker Property) is very hilly and will require silt fencing and hay bales to be installed at the discharge points to the Kootenai River and existing swales. For Site #2, which is generally flat, silt fencing will be extended as necessary to mitigate sediment discharge to the adjacent properties and the Kootenai River. Any drainage deficiencies surrounding the excavation areas at either site will be adjusted to tie in with the existing drainage control structures. Either modifications to existing drainage ditches or newly constructed drainage ditches may be required during the removal action and will be addressed during the construction process (Figure E-5). Additional containment berms may also be required during the removal action and will be addressed during the construction excavation process.

The following procedures will be followed to minimize mud on public roads:

- Install gravel entrances at the junction of the excavation site and public roadways. Gravel entrances will be constructed of a clean two-inch minus quarry rock or equivalent; and
- Install a decontamination wash pad facility at each site where all construction equipment and vehicles can be driven onto a pad and washed with water to remove visible signs of soil and mud from the exterior of the equipment or vehicle before leaving the site. The details of this facility and associated operating procedures are outlined in the Work Plan and HSP plans. Similarly, at the mine, an exit wash pad will be utilized for trucks leaving the upper mine area.

Rainy Creek road will be inspected for points of runoff to Rainy Creek and adjacent slopes. Silt fence and hay bale will be installed at select spots to collect fines mobilized by stormwater and the higher traffic impact. During heavy rains trucking will be restricted.

1.2 Structural Practices

The following structural erosion and sediment control practices will be used at the sites:

- Silt fence or staked hay bales will be keyed in place between the sediment source and areas just downgradient, within the excavation areas, before excavation activities begin and as necessary;
- Sediment-laden water will be filtered using erosion and sediment control measures such as staked hay bales or staked geotextile silt fence placed in natural or man-made drainageways. Hay bales and silt fence will be placed in such a manner as to prevent sediment from going around or under them;
- Temporary drainage ditches to divert surface water run on and run off around the excavation areas will be constructed as necessary before removal activities begin. The drainage ditches will either be a V-type or a flat-bottom type, with an average depth of one foot and side slopes of two-to-one. The length of any new ditch will be field determined when field personnel are on site;
- Soil stockpiles will be visually monitored during and after precipitation events. The stockpiles will be secured by covering with plastic when not in use. If sediment laden runoff develops, silt fence will be used to catch sediment; and
- Temporary berms of compacted soil may be keyed into existing surfaces and used to safely manage surface water run on and run off in and around the excavation areas.

1.3 Inspections

URS shall ensure that qualified personnel visually inspect all excavation areas for erosion daily (more frequently during heavy precipitation) during operations and report as part of the weekly information, action and corrective actions. The inspections will report evidence of sediment entering drainageways and ensure that all best management practices are functioning properly. Any deficiencies (e.g., a silt fence down or clogged, a seeded area washed out, etc.) observed and/or reported on a feature must be repaired as soon as practicable. Records of all inspections will be maintained. Areas to be inspected include:

- Disturbed areas of each site shall be inspected for evidence of erosion;
- Locations where vehicles enter or exit the construction site shall be inspected for evidence of off-site sediment tracking;

- Disposal and traffic areas at the mine site prior to disposal area restoration completion; and
- Erosion barrier silt fences and hay bales shall be checked for signs of deterioration and sediment accumulation.

1.4 Maintenance

Maintenance of erosion- and sediment-control measures will be conducted as necessary to ensure they are functioning properly. Maintenance procedures include:

- Sediment deposits will be removed from behind silt fences, hay bales, and other controls when they reach a height of one-half of the barrier. Accumulated sediment will be removed and placed with the materials being transported to the disposal site;
- Erosion-control devices will be replaced, repaired, or repositioned, as necessary; and
- Removal areas will be seeded as soon as possible after final site grading has been completed.

All repairs and maintenance activities should be implemented as soon as practicable after the inspection, but no later than seven calendar days following the inspection.

1.5 Record Keeping

An inspection and maintenance report form must be completed during each site inspection (at least once every seven calendar days). A copy of a standard form can be found as Table E-1. Copies of completed inspection reports must be kept on site.

A copy of this plan will be kept at the Libby construction office from the start of construction through the final construction inspection.

Table E-1. W.R. Grace & Co. Libby, Montana, Site

EROSION
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY PRECIPITATION OR SNOWMELT THAT CAUSES EROSION.

Inspector:_____ Date:_____

Signature:_____

Days since last rainfall:_____ Approximate amount of last rainfall:_____

Area	Disturbed? (Yes/No)	Stabilized? (Yes/No)	Stabilized with?	Condition

Stabilization and/or maintenance required:_____

_____

_____

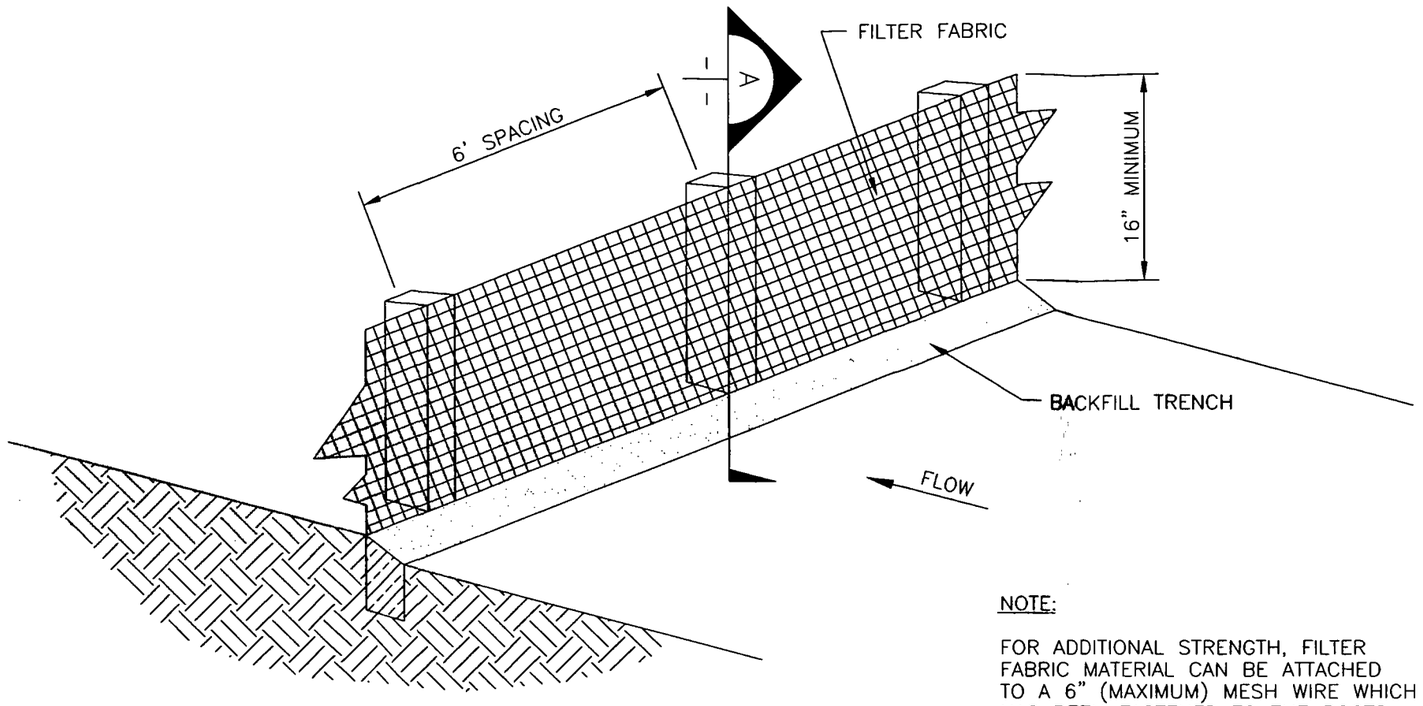
_____

To be performed by:_____ On or before:_____

STRUCTURAL CONTROLS

Structural Control	Control in Satisfactory Condition? (Yes/No)	Maintenance or Corrective Action Needed	Date Corrected	Comments

Figure E-1. Erosion control measures will be identified on site survey drawing



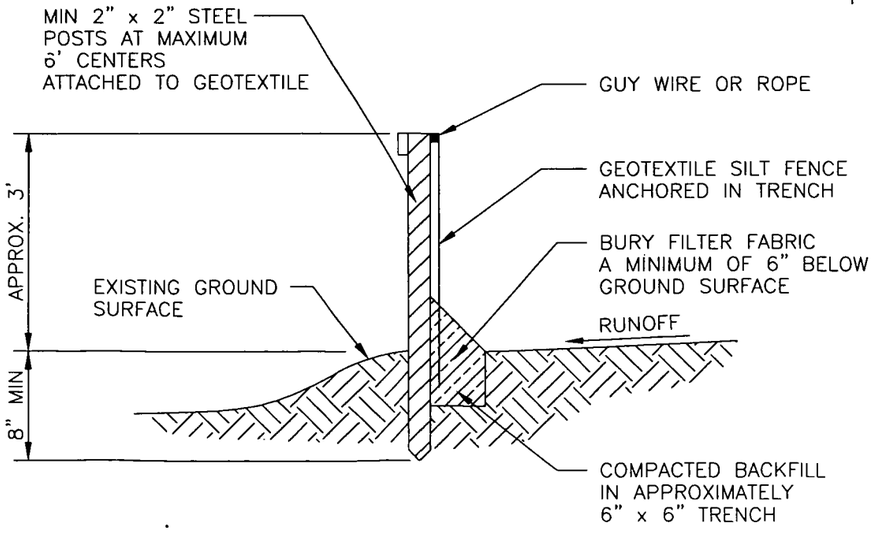
SILT FENCE INSTALLATION — 1
NOT TO SCALE

NOTE:

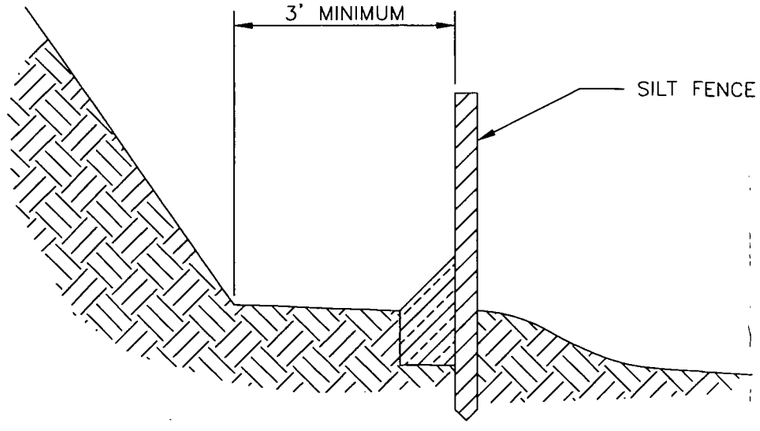
FOR ADDITIONAL STRENGTH, FILTER FABRIC MATERIAL CAN BE ATTACHED TO A 6" (MAXIMUM) MESH WIRE WHICH HAS BEEN FASTENED TO THE POSTS.

GENERAL NOTES:

1. SILT FENCE WILL BE PLACED SUCH THAT RUNOFF WILL NOT FLOW BETWEEN, AROUND, OR UNDER IT. SILT FENCE WILL BE ANCHORED AS SHOWN.
2. SILT AND SEDIMENT WILL BE REMOVED BY THE CONTRACTOR AFTER EACH SUBSTANTIAL RUNOFF EVENT. DEPOSITS WILL BE REMOVED WHEN THEY REACH A HEIGHT OF ONE HALF OF THE BARRIER.
3. SILT FENCE WILL BE USED ADJACENT TO DISTURBED AREAS AS SHOWN ON PLANS AND AS NEEDED. SILT FENCE WILL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND PLACED AWAY FROM THE TOE OF THE SLOPE FOR INCREASED HOLDING CAPACITY.



CROSS SECTION–SILT FENCE INSTALLATION — A
NOT TO SCALE



SILT FENCE INSTALLATION AT TOE OF SLOPE — 2
NOT TO SCALE

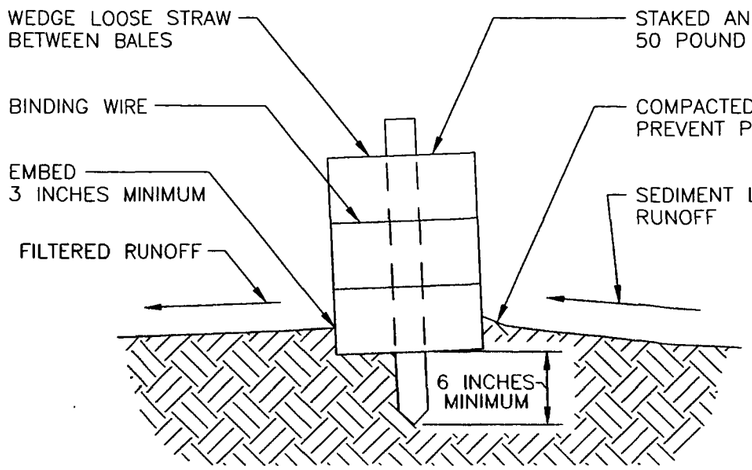
W.R. GRACE & CO.

DESIGN MODIFICATIONS FOR LIBBY ASBESTOS SITE

EROSION AND SEDIMENT CONTROL PLAN
TYPICAL SILT FENCE INSTALLATION

FIGURE E-2 27 SEPTEMBER 2000

DMRAD-05



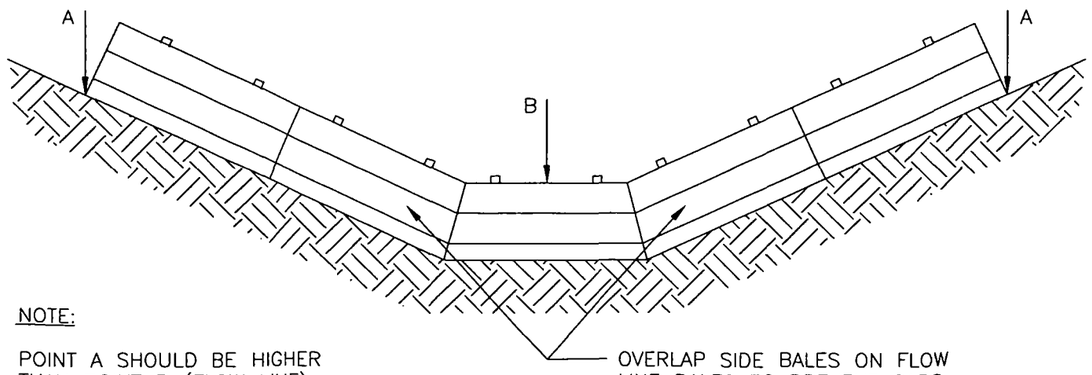
CROSS-SECTION OF A PROPERLY INSTALLED HAY BALE

NOT TO SCALE

1

GENERAL NOTES:

1. HAY BALES SHALL BE PLACED SUCH THAT RUNOFF WILL NOT FLOW BETWEEN, AROUND OR UNDER THEM. BALES SHALL BE ANCHORED WITH 2"x2"x4' WOODEN STAKES, TWO PER BALE.
2. SILT AND SEDIMENT WILL BE REMOVED BY THE CONTRACTOR AFTER EACH SUBSTANTIAL RUNOFF EVENT. DEPOSITS SHALL BE REMOVED WHEN THEY REACH A HEIGHT OF ONE HALF OF THE BARRIER.
3. THE USE OF DOUBLE ROWS OF OVERLAPPING HAY BALES SHALL BE USED AT CONCENTRATED FLOW POINTS. HAY BALES WILL BE STAGGERED AT APPROXIMATELY 100 FOOT INTERVALS OR LESS IN DRAINAGE CHANNELS TO AID IN EROSION CONTROL.



NOTE:

POINT A SHOULD BE HIGHER THAN POINT B (FLOW LINE)

OVERLAP SIDE BALES ON FLOW LINE BALES TO PREVENT GAPS

PROPER PLACEMENT OF HAY BALES OR SILT FENCE IN DRAINAGE CHANNEL

NOT TO SCALE

2

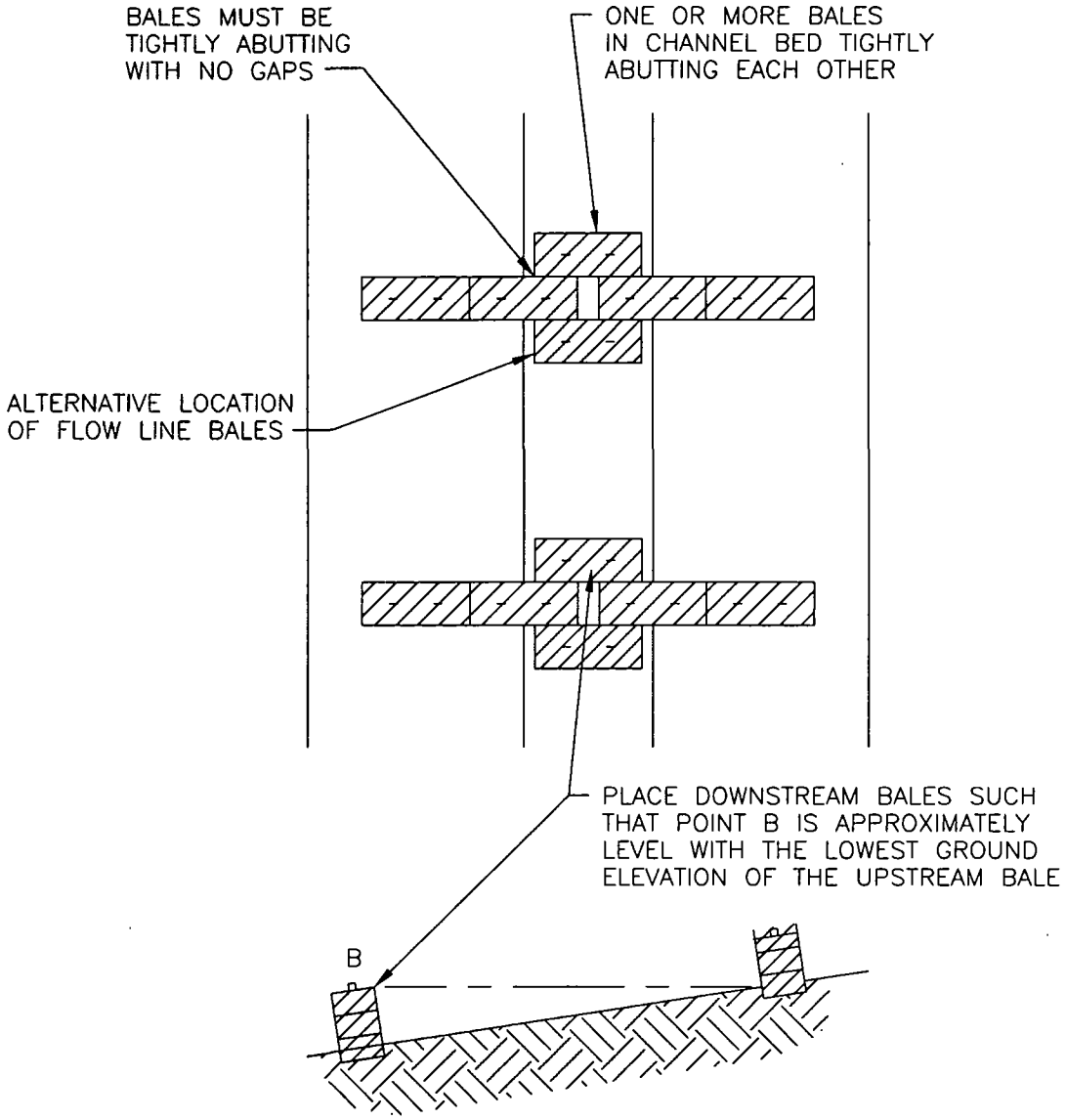
W.R. GRACE & CO.

DESIGN MODIFICATIONS FOR LIBBY ASBESTOS SITE

EROSION CONTROL PLAN
TYPICAL HAY BALE INSTALLATION

Figure E-3 27 SEPTEMBER 2000

DMRAD-03



HAY BALE INSTALLATION FOR WIDE DRAINAGE CHANNELS

NOT TO SCALE

3

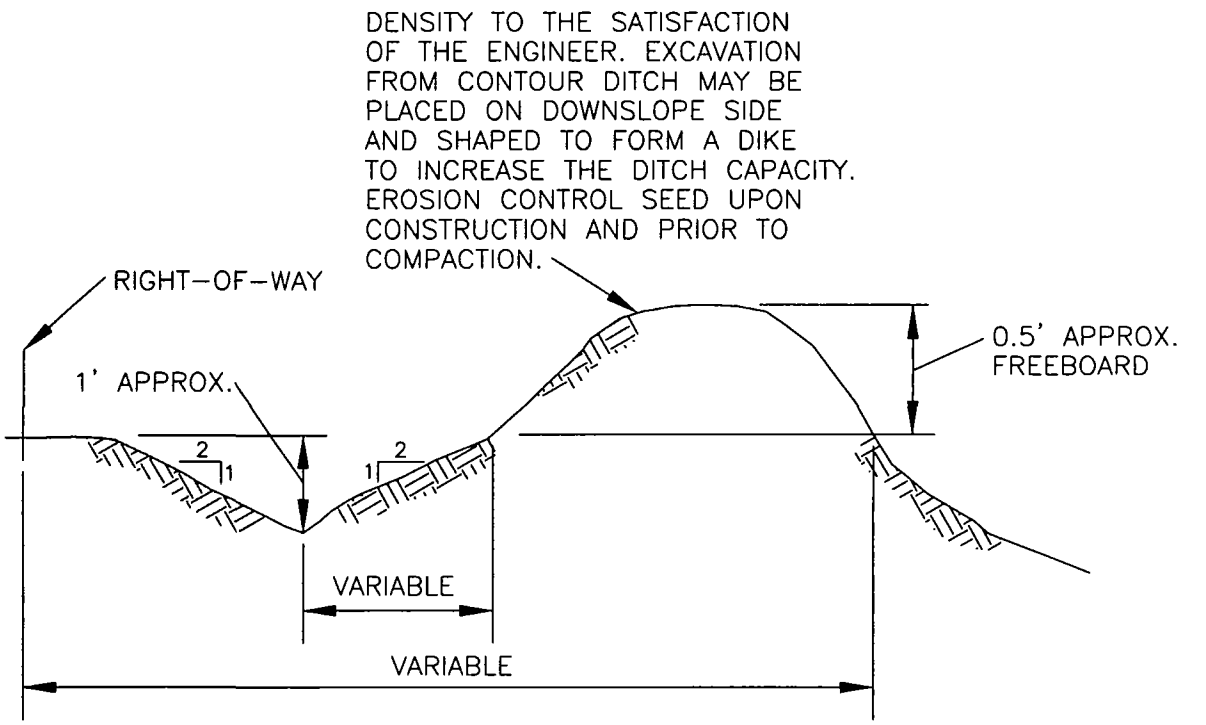
W.R. GRACE & CO.

DESIGN MODIFICATIONS FOR LIBBY ASBESTOS SITE

EROSION CONTROL PLAN
TYPICAL HAY BALE INSTALLATION FOR WIDE CHANNELS

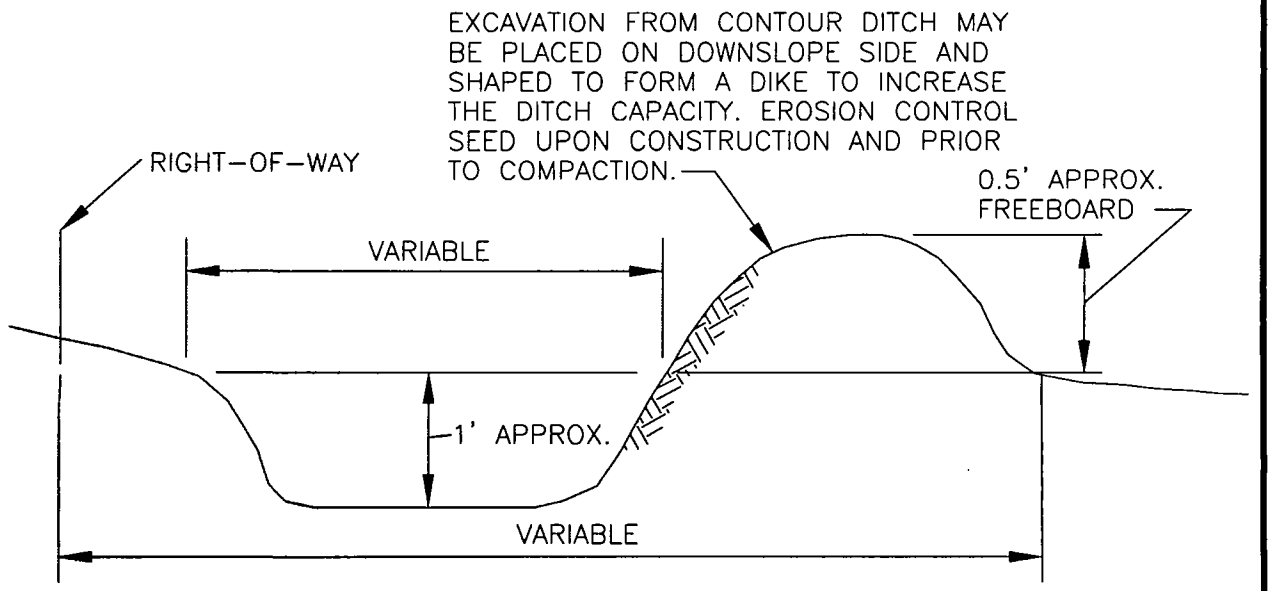
FIGURE E-4 27 SEPTEMBER 2000

DMRAD-04



TYPICAL V-DITCH

NOT TO SCALE



TYPICAL FLAT-BOTTOM DITCH

NOT TO SCALE

W.R. GRACE & CO.

DESIGN MODIFICATIONS FOR LIBBY ASBESTOS SITE

RUN-ON DIVERSION CONTROL

FIGURE E-5 27 SEPTEMBER 2000

DMRAD02

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F

APPENDIX F

DOCUMENTATION CONTROL WORK PLAN

1.0 Introduction

This document presents a Work Plan for activities associated with the control of all documents produced during the project involving the KDC Kootenai River Properties #1 and #2 removal activities. This Work Plan provides the methodology, collection, and Quality Assurance/Quality Control (QA/QC) procedures for tracking documents related to and generated during the execution of the project.

2.0 Document Control

2.1 Security and Document Release Procedure

Only the QA/QC manager and PjM will have access to all files (original and copies). These individuals will retain the key able to lock and unlock the secure area where files will be stored.

The QA/QC manager and PjM are the only individuals authorized to release documents to internal or external persons. Release will require written approval by the WR Grace Coordinator. A transmittal letter from either of those individuals stating the approval of the document release must accompany each document release.

2.2 Responsibilities Related to Document Control

2.2.1 QA/QC Manager

The QA/QC manager is responsible for the security of all files (original and copies). As stated in Section 2.1, only this individual and the PjM have a key able to lock and unlock the file storage area.

At the beginning of each day, the QA/QC manager will distribute log books to the appropriate field managers who are also on site. At the end of each day, the QA/QC manager will retrieve the log books from the field managers. After the log book pages have been assigned document control numbers, copied, and filed (see Section 3.2), they will be locked in the secure storage area with the other files.

The QA/QC manager will assign document control numbers to all documents produced (see Section 2.3). After document control numbers are assigned, each document will be entered into a database (see Section 2.4). The QA/QC manager will also be responsible for generating

various reports related to the document control database, as specified by project management individuals.

2.2.2 Project Manager

With respect to document control, the PjM will have authorization to release documents as stated in Section 2.1.

2.2.3 Field Managers

The field managers are the Project Manager and Construction Manager/SSHO. Each field manager is responsible for retrieving the appropriate log book at the beginning of each workday from the QA/QC manager. Throughout the day, the log book will be filled out according to Section 3.0. When a form is required, it should be stamped or noted into the log book and completed (see Section 3.1). At the end of the workday, when the field manager returns the log book to the QA/QC manager, any corrections requested by the QA/QC manager will be made by the field manager as outlined in Section 3.2.

2.2.4 Offsite Personnel

Any original documentation generated between off-site personnel will be forwarded to the QA/QC manager in order for it to be properly filed according to this Work Plan.

2.3 Document Control Number System

Each piece of paper produced during the project will be assigned a document control number using a stamp depicted in Figure F-1. The document control number will have the following format: project #, file code #, and document #.

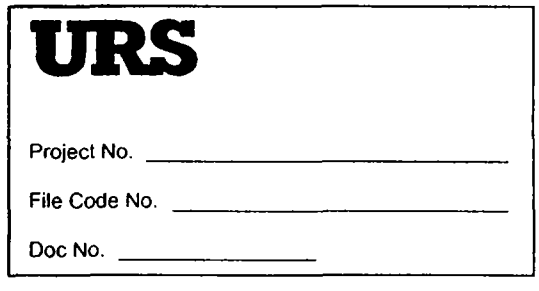

Figure F-1. Document Control Stamp

2.3.1 Project Number

The project number is assigned by URS Corporation (URS).

2.3.2 Area Numbers

Area numbers are assigned as follows:

- 01 - (A, B, C, etc.) = Soil removal at Site #1 an designated grid "A", etc., of the site per survey; and
- 02 – (A, B, C, etc.) = Soil removal at Site #2 an designated grid "A", etc., of the site per survey.

2.3.3 File Code

Figure F-2 illustrates the various categories for which file codes will be assigned. The subcategories listed under the categories may be added or deleted as deemed necessary by the QA/QC manager.

2.3.4 Document Number

The document number will be assigned by the document control database as a sequential number based on the order in which documents are entered.

2.4 Document Control Database

The QA/QC manager is in charge of tracking all documents produced. Hardcopies of documents, access, and inventory are controlled by the QA/QC manager and the PjM.

Upon entering each day's set of documents into the filing system, the log for each file will be updated. If items are released, a transmittal document will be utilized for information and tracking.

Figure F-2. Standardized Filing System for Environmental Services Performed at the WR Grace – Libby, Montana Site

Contract No. _____

URS Project No. _____

1.0 ADMINISTRATION	2.0 QAQC	3.0 CORRESP/MEMOS/FAX/TELECONS
1.0 Contract 1.1 Project set-up 1.2 Statement of Work 1.3 Work Plan/Appendices 1.4 Organization Chart 1.5 Schedules 1.6 Budgets/Insurance/Permits/Bonds 1.7 Disputes/Claims 1.8 Conflict of Interest 1.9 Miscellaneous	2.0 Client Reviews/Comments/URS Reponses 2.1 Ind. Peer Review (IPR)/Responses 2.2 Lab Audit Reports/Responses 2.3 Site Audit Reports/Responses 2.4 Data Validation Requests/Corresp./ Reports 2.5 Audit Schedule 2.6 Project QA Plans-Combined Forms 2.7 Miscellaneous	3.0 URS/W.R. Grace 3.1 W.R. Grace/URS 3.2 URS/URS 3.3 Subcontractor/URS 3.4 URS/Subcontractor 3.5 EPA/URS 3.6 URS/EPA 3.7 Labs/URS/ 3.8 Meeting Minutes/Agenda 3.9 Misc./Transmittals
4.0 HEALTH & SAFETY	**5.0 NON-URS & REFERENCE INFO**	**6.0 PROJECT DELIVERABLES/REPORTS**
4.0 H&S Draft/Review 4.1 H&S Plan 4.2 Monitoring Plan 4.3 Monitoring Logs/Summary 4.4 Accident Reports 4.5 Monitoring Results 4.6 Training/Certification 4.7 H&S Reports 4.8 H&S Correspondence 4.9 Miscellaneous	5.0 News, Magazines Articles 5.1 Maps 5.2 Data Summaries 5.3 Old Reports (other companies) 5.4 Releases 5.5 Photos 5.6 Non-URS Reports 5.7 Background Info. 5.8 ROD Amendments 5.9 Miscellaneous	6.0 Worksheets 6.1 Data Tables 6.2 Progress Reports 6.3 Draft/Final Reports 6.4 Final Reports (ROD, BRA, RI/FS, ARAR, Substantial Completion Report) 6.5 Specifications 6.6 Designs 6.7 Disks 6.8 Miscellaneous
7.0 CONSTRUCTION/DESIGN	**8.0 FIELD**	**9.0 SUBCONTRACTING**
7.0 Design Documents/Plans 7.1 Cost Estimates 7.2 Plans/Drawings 7.3 Manuals/Specification 7.4 Addendum to Specifications 7.5 Bid Documents 7.6 Miscellaneous	8.0 Field & Instrument SOPs 8.1 Calibration and Maintenance Records 8.2 Permits/Consent for Access 8.3 Survey Data 8.4 Photos/Maps 8.5 Change Orders/Change Order List 8.6 Log Book/Inspection Reports/Log List 8.7 Sampling and Analysis Plan 8.8 Field Orders/Non-Conformance Reports 8.9 Miscellaneous	9.0 Contract/Agreement 9.1 Contract Modifications 9.2 Contract Invoices
10.0 LABORATORY (SAMPLES)	**11.0 COMMUNITY RELATIONS**	**12.0 FIELD FORMS**
10.0 Preliminary Lab Results 10.1 Lab Data Report 10.2 Lab SOP's 10.3 C-of-C/Freight/Air Bills/Freight 10.4 Lab Support Documents 10.5 Sample Control Log 10.6 Lab Scheduling 10.7 Waste Profile Sheets 10.8 Analytical Support Docs 10.9 Miscellaneous	11.0 Presentation Materials 11.1 Schedules/Minutes of Meetings 11.2 Mailing Lists 11.3 Miscellaneous	

2.5 Filing

2.5.1 Field Documents

2.5.1.1 Daily

There will be a separate filing system consisting of folders having headings corresponding to days of the week worked (i.e., Monday, Tuesday, Wednesday, etc.). After all field documents are received by the QA/QC manager, a copy will be made and stamped as "COPY." The COPY will be filed in the appropriate day's folder.

2.5.1.2 Weekly

At the end of each workweek, the daily folders will be shipped to the PjM for review of the week's activities and permanent filing.

2.5.1.3 Weekly Transfer of Data to Regulatory Agencies

URS shall submit a written progress report to the EPA and to the state, concerning actions undertaken at each site from start of activities and continuing to final grading and seeding, every seventh day after the date of receipt of the EPA's approval of the Work Plan, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered; analytical data received during the reporting period; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems. Subsections will include a weekly Health and Safety Summary and material movement/disposal summary.

2.5.2 Other Filing Categories

The same procedures will be used for filing documents that fall into the following categories (see Figure F-2):

- Administration;
- QA/QC;
- Project correspondence;
- Health and safety;
- Non-URS and reference information;
- Project deliverables;
- Construction/design;

- Subcontracting;
- Laboratory; and
- Community relations.

When the QA/QC manager receives a document, it will be assigned a document control number. The document will then be copied and distributed if needed or filed. The original will be stamped as "ORIGINAL," while any copies made will be stamped as "COPY." The original version will be filed where appropriate, according to the document control number system. With regard to e-mail, it will be electronically forwarded to the QA/QC manager, who will print it out and treat it as any other document related to the project.

3.0 Logbook

Each logbook will have pre-printed, consecutively number pages and dimensions of approximately seven inches by 12 inches. The following individuals will be responsible for their own log books:

- Project Manager; and
- Construction Manager/SSHO.

The following items are required to be recorded in permanent ink in each log book each workday:

- Initials and date at the top of every page;
- Start time;
- Weather;
- Decontamination methods (a previous day's method may be cross-referenced if it is identical);
- PPE level;
- Each entry will have the signature of the individual recording information;
- Equipment and/or procedures used;
- Sample descriptions (time, depth, volume, containers, preservatives, etc.);
- QA/QC samples (field and laboratory);
- Observations;

- Field parameters;
- Maps and photos drawn or taken (and description);
- Lost/voided paperwork; and
- Time of each entry.

The following items are suggested to be included in the log book:

- Serial and model numbers on equipment used;
- Formulas, calculations, etc.;
- Useful phone numbers; and
- Site address.

Any deviations from planned procedures (and reasons for deviation) should be recorded in the log book. If a page is accidentally left blank or there is unused space at the end of a day's entry, draw a diagonal line through the space and initial and date the line. There should be no erasures in the field log books; errors should be crossed out, initialed, and dated.

3.1 Forms

To reduce the amount of loose and varying information on paper accumulated during the project, the following forms needed to complete the fieldwork will be made into rubber stamps, for log book use, or posted as standard forms or made into electronic versions:

- Daily Field Report;
- Daily Sign-In;
- Construction Safety Meeting Report;
- Supervisor's Incident Investigation Report;
- Supervisor's Incident Investigation Follow-Up Report;
- URS personnel Fit Test Record;
- Qualified Operator Training Record;
- Information to Employees Regarding the Removal of Asbestos-Containing Material;
- Safety Training Record;
- Electrical Ground Test Report;
- Heavy equipment daily operating checklist;
- Daily Traffic Control Report; and

- Erosion Inspection and Maintenance Record.

Each manager will have control over the necessary forms or stamps needed to document their respective activities in log books. If a daily form is used, it should be referenced in the log book.

3.2 Daily Logbook Activity

As stated in Sections 2.2.1 and 2.2.3, the QA/QC manager will distribute log books to the field managers at the beginning of the day, and the field managers will return the log books to the QA/QC manager at the end of the day. Before the field managers are allowed to leave the site, the QA/QC manager must verify the completeness of the log books. The QA/QC manager will record the following items in the log book during his/her review:

- Date;
- Time;
- Signature; and
- Any comments, changes needed, etc.

If needed, the field manager will record the required corrections or changes in the log book as follows:

- Date;
- Time;
- Signature; and
- Changes or corrections made and reasons for doing so.

Any changes will be marked such that it is apparent they were added after the day's activities were completed. After the review is finished, the field manager will sign and date the bottom of the page containing the last entry for that day. The QA/QC manager will assign a document control number to each page of the log book. Each page is copied at least twice, with each copy stamped as "COPY." One copy will be three-hole punched and inserted into either a dedicated binder for that log book or behind a tab denoting that particular log book as a backup in case of misplacement of the logbook. The second copy will be filed in the appropriate "day" folder (see Section 2.5.1.1).

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APPENDIX G

RESTORATION PLAN SITE #1 AND #2

(Plan will be prepared after excavation is completed at a site and an interim survey is obtained to establish final grades.)